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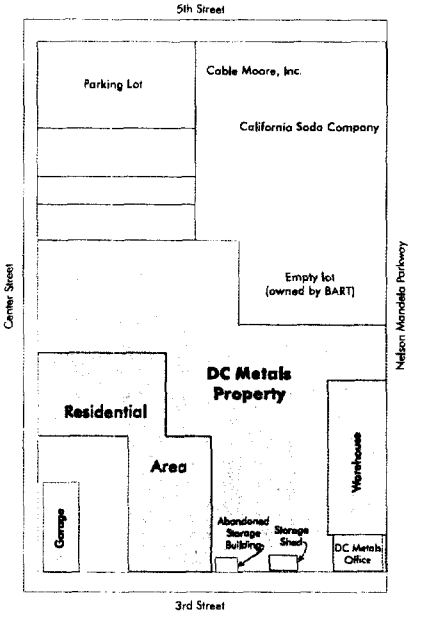
AMCO Chemical Site
(aka DC Metals)
Oakland, California



Preliminary Assessment/Site Investigation Report

Volume 2

Final
August 2001

Prepared For:

U.S. Environmental Protection Agency

EPA
REGION IX

Prepared By:

Ecology and Environment, Inc.
SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

REGION 9
START

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Laboratory:	EPA Region IX Laboratory

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX LABORATORY
1337 S. 46TH STREET
BLDG. 201
RICHMOND, CA 94804-4698

November 4, 1996

MEMORANDUM

SUBJECT: Case R97S08, SDG #SYL480
Results of Vinyl Chloride Analysis

FROM: Brenda Bettencourt, Chief
Laboratory Section (P-3-1)

TO: Bob Mandel, On-Scene Coordinator
Emergency Response Section (H-8-3)

Attached are the case narrative, including a QC summary, and preliminary unvalidated results for vinyl chloride analysis of soil gas samples taken on Oct. 28, 1996 at the D. C. Metals site. Summary information for the data included in this report is as follows:

SITE/PROJECT:	D. C. Metals
CASE:	R97S08
SAMPLE DELIVERY GROUP:	SYL480
LABORATORY:	U. S. EPA Region 9 Laboratory
ANALYSES:	Vinyl Chloride

A full documentation package for these data, including raw data and sample custody documentation will be prepared.

If you have any questions please contact Rich Bauer at (510) 412-2312, or Ken Hendrix at (510) 412-2321.

ATTACHMENT: Analytical Report, Case Narrative

FAX TRANSMITTAL

CASE NARRATIVE

Laboratory: Region 9
Case Number: [illegible]
SDG Number: SLY45
Analysis: Vinyl Chloride by TO-14 (Volatile Organics) Modified
Collection Date: [illegible]
Site: D. C. Metals

Twelve cleaned and certified SUMMA canisters supplied by the Region 9 Laboratory were received and analyzed for vinyl chloride by the TO-14 volatile organics method. Since there was only one compound of interest, the method was modified to save time and supplies. A five point calibration was performed using SIM mode of analysis. The %RSD for the response factors was 24.1% which is within the acceptable range for volatile compounds. A continuing calibration check sample was analyzed before and after sample analyses at a frequency of greater than 10%. All continuing calibration checks were within the <25% difference range. The GC/MS system was tuned to BFB specifications prior to calibration and analysis of sample and laboratory blanks were analyzed prior to sample analysis.

Samples were screened by running a 25 ml sample which represents a sample volume 20 times less than that used for calibration. Based on the screening results and the required 3ppbv detection limit, samples with no detectable level of vinyl chloride with a 25 ml sample were reanalyzed using a 250 ml volume. Sample SLY480 was too high to analyzed just by reducing sample volume and had to be diluted for quantitation. A dilution of 1000 was used to bring the concentration within the calibration range. All other samples were analyzed within the calibration range without dilution but using a reduced sample volume when necessary. All calculations were done based on the 500 ml sample volume used to prepare the calibration curve.

EPA REGION 9 LABORATORY-RICHMOND, CA

SUMMARY OF VOLATILE ORGANICS

Case Number: [illegible] Analysis: VINYL CHLORIDE

Site: [illegible] Matrix: [illegible]

SDG: [illegible] Unit: [illegible]

Station Location					
Sample ID	SYL482	SYL481	SYL482	SYL483	SYL484
Date of Collection	10/25/96	10/25/96	10/25/96	10/25/96	10/25/96
Units	PPBV	PPBV	PPBV	PPBV	PPBV
Analyte	Result Q	Result Q	Result Q	Result Q	Result Q
[illegible]	[illegible] U	[illegible] 74	[illegible] ND(3) U	[illegible] ND(3) U	ND(3) U

Station Location	EQUIP BLANK	AMBIENT	FT 5	FT 6	[illegible]
Sample ID	SYL485	SYL486	[illegible] SYL	[illegible] SYL488	SYL489
Date of Collection	10/26/96	10/26/96	10/26/96	10/26/96	10/26/96
Units	PPBV	PPBV	PPBV	PPBV	PPBV
Analyte	Result Q	Result Q	Result Q	Result Q	Result Q
[illegible]	3 U	3 U	[illegible] ND(3) U	[illegible] ND(3) U	360

Station Location	FT 8	FT 9	EQUIPMENT	[illegible]
Sample ID	[illegible] SYL490	[illegible]	[illegible]	
Date of Collection	10/26/96	10/26/96	10/26/96	
Units	PPBV	PPBV	PPBV	
Analyte	Result Q	Result Q	Result Q	Result
[illegible]	[illegible] 140	[illegible] 270	3 U	

[illegible] Data Qualifiers

[illegible] EPA Region 9 Lab Method [illegible]

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF UNVALIDATED RESULTS

Case Number: R97S08
Site: D. C. METALS
SDG: SYL504
Date: 11/20/96

Analysis: VINYL CHLORIDE
Matrix: SOIL GAS

Station Location	PT. 20		PT. 21		PT. 21		PT. 22		PT. 23	
Sample I.D.	SYL504		SYL505		SYL506		SYL507		SYL508	
Date of Collection	11/13/96		11/13/96		11/13/96		11/13/96		11/13/96	
Units	PPBV		PPBV		PPBV		PPBV		PPBV	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Vinyl Chloride	3	U	3	U	3	U	6400	D	69	

Station Location	PT. 24		PT. 25		PT. 26		PT. 26		AMBIENT AIR	
Sample I.D.	SYL509		SYL510		SYL511		SYL512			
Date of Collection	11/13/96		11/13/96		11/13/96		11/13/96		11/13/96	
Units	PPBV		PPBV		PPBV		PPBV		PPBV	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Vinyl Chloride	230		3	U	77		78		3	U

Station Location	SPIKE		TRAVEL BLANK		LAB BLANK		LAB BLANK	
Sample I.D.								
Date of Collection	11/12/96		11/12/96		11/18/96		11/19/96	
Units	PPBV		PPBV		PPBV		PPBV	
Analyte	Result	Q	Result	Q	Result	Q	Result	
Vinyl Chloride	31		3	U	3	U	3	U

Q-Laboratory Data Qualifiers
Refer to EPA Region 9 Laboratory Qualifier Definitions
U-The analyte was analyzed for but not detected above the reported quantitation limit.
D-The quantitation is based on a dilution of the original sample.

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF UNVALIDATED RESULTS

Case Number: R97S08
Site: D. C. METALS
SDG: SLY480 & SLY500
Date: 11/13/96

Analysis: VINYL CHLORIDE
Matrix SOIL GAS

Station Location	PT. 10		PT. 11		PT. 12		PT. 13		PT. 14	
Sample I.D.	SLY492		SLY493		SLY494		SLY495		SLY496	
Date of Collection	10/29/96		10/29/96		10/29/96		10/29/96		10/29/96	
Units	PPBV		PPBV		PPBV		PPBV		PPBV	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Vinyl Chloride	13000	D	17000	D	64		3	U	3	U

Station Location	PT. 15		PT. 16		PT. 17		PT. 18		PT. 19	
Sample I.D.	SLY497		SLY498		SLY499		SLY500		SLY501	
Date of Collection	10/29/96		10/29/96		10/29/96		10/29/96		10/29/96	
Units	PPBV		PPBV		PPBV		PPBV		PPBV	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Vinyl Chloride	3	U	3	U	3	U	3	U	3	U

Station Location	SPIKE		TRAVEL BLANK		LAB BLANK		LAB BLANK	
Sample I.D.	SLY502		SLY503					
Date of Collection	10/29/96		10/29/96		11/12/96		11/13/96	
Units	PPBV		PPBV		PPBV		PPBV	
Analyte	Result	Q	Result	Q	Result	Q	Result	
Vinyl Chloride	4		3	U	3	U	3	U

Q-Laboratory Data Qualifiers

U-The analyte waanalyzed for but not detected above the reporting limit.
D-The quantitation for this sample is calculated from a dilution of the original sample because the concentration is above the calibration range.

DATA SUMMARIES

Sample Marix: Soil Gas
Analysis: Volatile Organics by EPA TO-15
Sample Date(s): 11/7/97, 11/8/97
Laboratory: EPA Region IX Laboratory

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF PRELIMINARY RESULTS

Case Number: R98S07
Site: DC Metals
SDG: SG151007
Date: 11/17/97

Analysis: TO15 Volatile Organics
Matrix: Soil Gas

Station Location	SG15-100797		SG30-100797		SG30R-100797		SGAME-10/07/97		SG45-100797	
Sample I.D.	SG15		SG30		SG30R		SGAME		SG45	
Date of Collection	10/07/97		10/07/97		10/07/97		10/07/97		10/07/97	
Dilution Factor	10.0		36.1		35.1		1.0		100.0	
Units	ppbv		ppbv		ppbv		ppbv		ppbv	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Dichlorodifluoromethane	10	U	36	U	35	U	0.9	J	100	U
1,2-Dichloro-1,1,2,2-Tetrafluoromethane	10	U	36	U	35	U	1	U	100	U
Chloromethane	10	U	36	U	59		1.1		100	U
Vinyl Chloride	250000		1300000		200000		55		800	
Bromomethane	10	U	36	U	35	U	1	U	100	U
Chloroethane	6700		33000		40000		0.8	J	19000	
Trichlorofluoromethane	10	U	36	U	74		0.7	J	100	U
1,1-Dichloroethene	1200		11000		35	U	0.7	J	100	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	16		58		35	U	1	U	950	
Methylene Chloride	9500		1400		35	U	1.7		100	U
1,1-Dichloroethane	12000		190000		52000		3.1		3100	
cis-1,2-Dichloroethene	150000		650000		84000		48		1000	
Chloroform	10	U	36	U	35	U	1	U	100	U
1,1,1-Trichloroethane	10	U	36	U	35	U	1	U	100	U
Carbon Tetrachloride	10	U	36	U	35	U	1	U	100	U
Benzene	2000		15000		6300		1.3		13000	
1,2-Dichlorethane	220		36	U	35	U	1	U	100	U
Trichloroethylene	120000		1300		830		54		100	U
1,2-Dichloropropane	10	U	36	U	35	U	0.3	J	100	U
cis-1,3-Dichloropropene	10	U	36	U	35	U	1	U	100	U
Toluene	89000		1800000		830000		69		17000	
trans-1,3-Dichloropropene	10	U	36	U	35	U	1	U	100	U
1,1,2-Trichloroethane	10	U	36	U	35	U	1	U	100	U
Tetrachloroethene	7600		1700		530		2.8		100	U
1,2-Dibromoethane	10	U	36	U	35	U	1	U	100	U
Chlorobenzene	270		460		340		0.7	J	100	U
Ethylbenzene	8800		110000		38000		3.8		4200	
m,p-Xylene	20000		290000		140000		13		8600	
o-Xylene	6100		95000		33000		5.5		2000	
Styrene	10	U	36	U	35	U	1.3		100	U
1,1,2,2-Tetrachlorethane	10	U	36	U	35	U	1	U	100	U
1,3,5-Trimethylbenzene	390		12000		7000		4.4		100	U
1,2,4-Trimethylbenzene	790		24000		16000		9		1300	
1,3-Dichlorobenzene	16		36	U	35	U	1.4		100	U
1,4-Dichlorobenzene	10	U	57		44		1.8		100	U
1,2-Dichlorobenzene	120		3000		3600		3		100	U
1,2,4-Trichlorobenzene	10	U	36	U	35	U	5.4		100	U
Hexachloro-1,3,-butadiene	10	U	36	U	35	U	0.6	J	100	U

Q-Laboratory Data Qualifiers

Refer to EPA Region 9 Laboratory Qualifier Definitions

Filename: SG15TO15.WK4

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF PRELIMINARY RESULTS

Case Number: R98S07 | **Analysis:** TO15 Volatile Organics
Site: DC Metals | **Matrix:** Soil Gas
SDG: SG151007
Date: 11/17/97

Station Location	SG21-100797		SG8-1008797		SG20-1008797		SG11-1008797		SG10-1008797	
Sample I.D.	SG21		SG8		SG20		SG8		SG10	
Date of Collection	10/07/97		10/08/97		10/08/97		10/08/97		10/08/97	
Dilution Factor	1.0		4.0		4.0		1.0		2.0	
Units	ppbv		ppbv		ppbv		ppbv		ppbv	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Dichlorodifluoromethane	1	U	4	U	4	U	1	U	2	U
1,2-Dichloro-1,1,2,2-Tetrafluoromethane	1	U	4	U	4	U	1	U	2	U
Chloromethane	0.5	J	4	U	4	U	0.5	J	2	U
Vinyl Chloride	90		160		61		19		120	
Bromomethane	1	U	4	U	4	U	1	U	2	U
Chloroethane	20		160		6		2.7		46	
Trichlorofluoromethane	2.7		4	U	8		7		2.4	
1,1-Dichloroethene	1.8		4	U	4	U	1	U	2.9	
1,1,2-Trichloro-1,2,2-Trifluoroethane	1	U	4	U	4	U	1	U	7.1	
Methylene Chloride	1.6		4	U	4	U	1.3		2	U
1,1-Dichloroethane	160		53		63		15		57	
cis-1,2-Dichloroethene	500		98		93		77		130	
Chloroform	4.7		4	U	4	U	30		2	U
1,1,1-Trichloroethane	55		4	U	160		6.5		4.3	
Carbon Tetrachloride	1	U	4	U	4	U	1	U	2	U
Benzene	53		31		7		7.2		23	
1,2-Dichlorethane	1	U	4	U	4	U	1	U	2	U
Trichloroethylene	15		4	U	8.7		51		9.2	
1,2-Dichloropropane	1	U	4	U	4	U	1	U	2	U
cis-1,3-Dichloropropene	1	U	4	U	4	U	1	U	2	U
Toluene	7300		1500		1000		960		1100	
trans-1,3-Dichloropropene	1	U	4	U	4	U	1	U	2	U
1,1,2-Trichloroethane	1	U	4	U	4	U	1	U	2	U
Tetrachloroethene	8.3		4	U	6.4		23		3	
1,2-Dibromoethane	1	U	4	U	4	U	1	U	2	U
Chlorobenzene	7.3		4	U	4	U	1	U	2	U
Ethylbenzene	1100		170		150		160		200	
m,p-Xylene	2700		470		420		430		410	
o-Xylene	1100		200		160		160		220	
Styrene	1	U	5.5		4	U	1	U	3.8	
1,1,2,2-Tetrachlorethane	1	U	4	U	4	U	1	U	2	U
1,3,5-Trimethylbenzene	370		66		41		53		37	
1,2,4-Trimethylbenzene	1000		220		190		150		190	
1,3-Dichlorobenzene	1	U	4	U	4	U	1	U	2	U
1,4-Dichlorobenzene	2		4	U	4	U	0.7	J	2	U
1,2-Dichlorobenzene	200		56		27		32		18	
1,2,4-Trichlorobenzene	1	U	4	U	4	U	1	U	2	U
Hexachloro-1,3,-butadiene	1	U	12		4	U	1	U	2	U

Q-Laboratory Data Qualifiers

Refer to EPA Region 9 Laboratory Qualifier Definitions

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF PRELIMINARY RESULTS

Case Number: R98S07
Site: DC Metals
SDG: SG151007
Date: 11/17/97

Analysis: TO15 Volatile Organics
Matrix: Soil Gas

Station Location	SG55S-1008797		SG55SD-1008797		SG35N-1008797		SG50WN-1008797		SG50N45-1008797	
Sample I.D.	SG55S		SG55SD		SG35N		SG50WN		SG50N45	
Date of Collection	10/08/97		10/08/97		10/08/97		10/08/97		10/08/97	
Dilution Factor	4.0		10.0		10.0		10.0		10.0	
Units	ppbv		ppbv		ppbv		ppbv		ppbv	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Dichlorodifluoromethane	4	U	10	U	70		10	U	10	U
1,2-Dichloro-1,1,2,2-Tetrafluoromethane	4	U	10	U	10	U	10	U	10	U
Chloromethane	4	U	10	U	10	U	10	U	10	U
Vinyl Chloride	730		160		1500000		2200		2200000	
Bromomethane	4	U	10	U	10	U	10	U	10	U
Chloroethane	2100		1600		9200		9400		7300	
Trichlorofluoromethane	4	U	10	U	3100		10	U	10	U
1,1-Dichloroethene	4	U	10	U	2800		10	U	5200	
1,1,2-Trichloro-1,2,2-Trifluoroethane	4	U	10	U	9.3	J	10	U	10	U
Methylene Chloride	4	U	10	U	43		10	U	10	U
1,1-Dichloroethane	87		66		160000		1300		90000	
cis-1,2-Dichloroethene	1700		< 53		370000		680		1700000	
Chloroform	4	U	10	U	23		10	U	10	U
1,1,1-Trichloroethane	4	U	10	U	10	U	10	U	10	U
Carbon Tetrachloride	4	U	10	U	10	U	10	U	10	U
Benzene	50		34		10000		4000		14000	
1,2-Dichlorethane	4	U	58		10	U	10	U	10	U
Trichloroethylene	6.4		10	U	1800		25		980	
1,2-Dichloropropane	4	U	10	U	10	U	10	U	10	U
cis-1,3-Dichloropropene	4	U	10	U	10	U	10	U	10	U
Toluene	1900		1200		180000		3100		220000	
trans-1,3-Dichloropropene	4	U	10	U	10	U	10	U	10	U
1,1,2-Trichloroethane	4	U	10	U	10	U	10	U	10	U
Tetrachloroethene	4	U	10	U	190		15		680	
1,2-Dibromoethane	4	U	10	U	10	U	10	U	10	U
Chlorobenzene	21		10	U	2100		65		1900	
Ethylbenzene	89		83		31000		1900		24000	
m,p-Xylene	230		220		78000		1500		61000	
o-Xylene	130		110		51000		190		24000	
Styrene	4	U	10	U	10	U	10	U	10	U
1,1,2,2-Tetrachlorethane	4	U	10	U	10	U	10	U	10	U
1,3,5-Trimethylbenzene	45		40		41000		130		7900	
1,2,4-Trimethylbenzene	96		120		63000		770	D	15000	
1,3-Dichlorobenzene	4	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	4	U	10	U	140		14		1300	
1,2-Dichlorobenzene	34		19		5400		99		6300	
1,2,4-Trichlorobenzene	4	U	10	U	10	U	10	U	10	U
Hexachloro-1,3,-butadiene	4	U	10	U	10	U	10	U	10	U

Q-Laboratory Data Qualifiers

Refer to EPA Region 9 Laboratory Qualifier Definitions

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF PRELIMINARY RESULTS

Case Number: R98S07
Site: DC Metals
SDG: SG151007
Date: 11/17/97

Analysis: TO15 Volatile Organics
Matrix: Soil Gas

Station Location	SG22-1008797		SG22D-1008797	
Sample I.D.	SG22		SG22D	
Date of Collection	10/08/97		10/08/97	
Dilution Factor	4.0		2.0	
Units	ppbv		ppbv	
Analyte	Result	Q	Result	Q
Dichlorodifluoromethane	4	U	2	U
1,2-Dichloro-1,1,2,2-Tetrafluoromethane	4	U	2	U
Chloromethane	4	U	2	U
Vinyl Chloride	1700		2700	
Bromomethane	4	U	2	U
Chloroethane	6000		13000	
Trichlorofluoromethane	150		340	
1,1-Dichloroethene	36		30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	6100		11000	
Methylene Chloride	110		200	
1,1-Dichloroethane	13000		29000	
cis-1,2-Dichloroethene	880		1300	
Chloroform	4	U	2	U
1,1,1-Trichloroethane	20		17	
Carbon Tetrachloride	4	U	2	U
Benzene	760		1400	
1,2-Dichlorethane	72		2	U
Trichloroethylene	48		42	
1,2-Dichloropropane	4	U	2	U
cis-1,3-Dichloropropene	4	U	2	U
Toluene	6300		9200	
trans-1,3-Dichloropropene	4	U	1.2	J
1,1,2-Trichloroethane	4	U	2	U
Tetrachloroethene	120		200	
1,2-Dibromoethane	4	U	2	U
Chlorobenzene	18		8.4	
Ethylbenzene	7900		13000	
m,p-Xylene	14000		21000	
o-Xylene	4000		4600	
Styrene	4	U	2	U
1,1,2,2-Tetrachlorethane	4	U	2	U
1,3,5-Trimethylbenzene	540		240	
1,2,4-Trimethylbenzene	480		350	
1,3-Dichlorobenzene	27		15	
1,4-Dichlorobenzene	46		63	
1,2-Dichlorobenzene	470		2	U
1,2,4-Trichlorobenzene	4	U	2	U
Hexachloro-1,3,-butadiene	4	U	2	U

Q-Laboratory Data Qualifiers
Refer to EPA Region 9 Laboratory Qualifier Definitions

DATA SUMMARIES

Sample Marix:	Groundwater
Analysis:	Volatile and Semi Volatile Organic Compounds by CLP SOW OLM03.0 and Metals by CLP SOW ILM03.0
Sample Date(s):	2/28/97
Laboratory:	EPA Region IX Laboratory

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX LABORATORY
1337 S. 46TH STREET
BLDG. 201
RICHMOND, CA 94804-4698

MAR 2 7 1997

MEMORANDUM

SUBJECT: Case R97S25 SDG GM10 (Samples Collected 2/28/97)
Results for Metals, Semivolatile Organic Compounds, and Volatile Organic Compounds Analyses

FROM: Brenda Bettencourt, Director
Region 9 Laboratory (PMD-2)

TO: Bob Mandel, On-Scene Coordinator
Emergency Response Office (SFD-6)

Attached are the case narratives, unvalidated results, and QC summaries for data from analysis of water samples from the DC Metals Emergency Response site. Preliminary results were sent by electronic mail to Cindy Jones of Ecology and Environment on 3/14/97. Summary information for the data included in this report is as follows:

SITE/PROJECT:	DC Metals
CASE:	R97S25
SAMPLE DELIVERY GROUP:	GM10 (Samples Collected 2/28/97)
LABORATORY:	U. S. EPA Region 9 Laboratory
ANALYSES:	Volatile and Semivolatile Organic Compounds (CLP SOW OLM03.0)
	Metals (CLP SOW ILM03.0)

Full documentation packages for these data, including raw data and sample custody documentation, have been prepared and sent to the Quality Assurance Program (PMD-3). Please contact Vance Fong for information regarding review and/or validation of the data.

If you have any questions please contact Rich Bauer at (510) 412-2312, or Ken Hendrix at (510) 412-2321.

ATTACHMENT: Analytical Reports

cc: Cindy Jones, Ecology and Environment, Inc.

USEPA REGION 9 LABORATORY
CASE NARRATIVE

CASE NUMBER:
SAMPLE DELIVERY GROUP: **R97S25**
PROGRAM: **GM10**
DOCUMENT CONTROL #: **Superfund**
ANALYSIS PERFORMED: **97-03-26-JN-1**
DATE SUBMITTED: **03/26/97**
SAMPLE NUMBERS: **RAP VOLATILES**

EPA NUMBER	LAB SAMPLE ID.
GM10-022897	AB13953
GM11-022897	AB13955
GM12-022897	AB13953
GM13-022897	AB13956
GM14-022897	AB13958
GM113-022897	AB13957
GM200-022897	AB13959

GENERAL COMMENTS

Seven water samples from the DC Metals Superfund site were received at the EPA Region 9 laboratory on 02/28/97.

The samples were analyzed in accordance with the modified OLM03.0 CLP Statement of Work, with a 25-mL purge volume to achieve low CRQLs. In addition, specific analytical requirements detailed in the SAS CRF (04/07/94 revision) were followed. These include analysis of the initial calibration standards at 1.0, 2.0, 5.0, 10, and 25 ug/L, and analysis of a CRQL standard at 0.5 ug/L to demonstrate the ability to detect carbon tetrachloride, 1,2-dichloroethane, vinyl chloride, cis-1,3-dichloropropene, and trans-1,3-dichloropropene at this level. Due to the poor purging efficiency of acetone, 2-butanone, 4-methyl-2-pentanone, and 2-hexanone, the concentrations of these four compounds were increased by a factor of five in the initial and continuing calibrations.

SAMPLE RECEIPT AND PRESERVATION

The samples were hand delivered to the laboratory. No shipping or preservation problems were encountered with these samples.

QA/QC SUMMARY

Method Blanks

A laboratory method blank is laboratory reagent water or baked sand with all reagents, surrogates, and internal standards added and carried through the same sample preparation and analytical procedures as the field samples. The laboratory method blank is used to determine the level of contamination introduced by the laboratory during extraction and analysis.

Chloromethane and Bromomethane were detected in the method blank analyzed on 03/04/97. The amounts detected were below the CRQL. The associated sample data has been flagged accordingly. All other method blanks were free of target compound contamination.

Surrogates:
Surrogates are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with surrogate compounds prior to analysis. Surrogate percent recovery (%R) provides information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.

Due to the high native concentration of target and non-target compounds in these samples, several surrogate recoveries were outside of method QC limits. The surrogate recoveries for the method blanks and sample dilutions were all within QC limits. The following table details the surrogate recoveries for samples in which at least one surrogate failed:

	Percent Recovery		
Sample	Toluene-d8	Bromofluorobenzne	1,2-Dichloroethane-d4
GM10	103	114	132
GM113	53	123	29
GM12	39	113	138
GM13	50	124	20
GM14	119	53	77
QC limits	88 - 110	86 - 115	76 - 114

Matrix Spike and Spike Duplicate Analysis (QC Sample: GM11)
Matrix spike sample and spike duplicate analyses provide information about the effect of the sample matrix on sample preparation and measurement. Poor percent recovery (%R) results and large relative percent difference (RPD) between duplicates may indicate poor laboratory technique, sample nonhomogeneity in soils, or matrix effects which may interfere with analysis.

All MS/MSD criteria were within method QC limits.

Internal Standards:
Internal standards are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with internal standard compounds prior to analysis. Internal standard recoveries and retention times provides information about both the instrument performance on individual samples and the possible effects of the sample matrix on the analytical results.

Samples GM113 and GM13 had internal standard area counts that were outside of QC limits. The internal standard areas were all within QC limits for the method blanks and the sample dilutions.

All other method criteria were met.

ANALYTICAL COMMENTS

As instructed by the TDF, all samples were initially analyzed at a 1:5 dilution. Several samples required further dilutions because the native concentration of target compounds exceeded the calibration range.

The results can be found on the Form I reports. On the Form Is reports, the following qualifiers are used.

B	This analyte was detected in the associated method blank.
D	The amount detected is calculated from a diluted sample.
E	The amount detected exceeds the calibration range of the instrument.
J	The amount detected is less than CRQL and is only an estimated value.

N The identification of this compound is based upon a mass spectral library search.
U This compound was analyzed for, but not detected.

DISCLAIMER ON ROUNDING

Numerical results generated by Formaster may not match exactly with numbers generated from the same data, by other programs, or calculated manually. Formaster uses the *even/odd* rounding rule. This rounding rule states that if the digit preceding the last digit to be retained is odd, round up, and if the digit preceding the last digit to be retained is even, round down. If you round to the nearest integer, using the even/odd rule, the value 3.46 would be rounded up to 4, and 2.54 would be rounded down to 2.

Any questions in reference to this data package may be addressed to Joseph Naughten at (510)412-2358.

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF UNVALIDATED RESULTS

Case Number: R97S25
Site: DC Metals
SDG: GM10
Date: 03/26/97

Analysis: GC/MS VOAS
Matrix: Low Level Water

Station Location Sample I.D. Date of Collection Units Analyte	GM10-022897 GM10 02/28/97 ug/L Result	Q	GM11-022897 GM11 02/28/97 ug/L Result	Q	GM12-022897 GM12 02/28/97 ug/L Result	Q	GM13-022897 GM13 02/28/97 ug/L Result	Q	GM14-022897 GM14 02/28/97 ug/L Result	Q
Chloromethane	3	JB	5	U	17		2	J	50	U
Bromomethane	2	JB	5	U	4	J	5	U	50	U
Vinyl Chloride	43		4		3400		5400		170	
Chloroethane	47		5	U	630		21		15	J
Methylene Chloride	4	J	5	U	44		19000		150000	
Acetone	38	J	50	U	11000		60000		2700	
Carbon Disulfide	5	U	5	U	58		2	J	21	J
1,1-Dichloroethene	5		5	U	220		9		260	
1,1-Dichloroethane	110		2	J	2500		4700		20000	
cis-1,2-Dichloroethene	240		11		42000		10000		20000	
trans-1,2-Dichloroethene	4	J	5	U	390		10		94	
Chloroform	5	U	5	U	2	J	5	U	260	
1,2-Dichloroethane	2	U	2	U	23		12		950	
1,2-Dibromo-3-chloropropane	5	U	5	U	5	U	5	U	50	U
1,2-Dibromoethane	5	U	5	U	5	U	5	U	50	U
2-Butanone	15	J	14	J	31000		620000		2100	
1,1,1-Trichloroethane	5	U	5	U	940		5	U	26000	
Carbon Tetrachloride	2	U	2	U	2	U	2	U	25	U
Bromodichloromethane	5	U	5	U	5	U	5	U	50	U
1,2-Dichloropropane	1	J	5	U	6		5	U	50	U
cis-1,3-Dichloropropene	2	U	2	U	2	U	2	U	25	U
Trichloroethene	15		7		3000		620		310000	
Dibromochloromethane	5	U	5	U	5	U	5	U	50	U
1,1,2-Trichloroethane	5	U	5	U	18		21		50	U
Benzene	84		5	U	1000		350		1200	
trans-1,3-Dichloropropene	2	U	2	U	2	U	2	U	25	U
Bromoform	5	U	5	U	5	U	5	U	50	U
4-Methyl-2-pentanone	35	J	50	U	59000		190000		29000	
2-Hexanone	50	U	50	U	50	U	34	J	500	U
Tetrachloroethene	1	J	5	U	13		56		20000	
1,1,2,2-Tetrachloroethane	5	U	5	U	5	U	1	J	50	U
Toluene	96		5	U	53000		43000		94000	
Chlorobenzene	5		5	U	15		5	U	53	
Ethyl Benzene	39		5	U	420		720		2700	
Styrene	5	U	5	U	5	U	5	U	50	U
Xylene (-ortho)	28		5	U	910		980		4000	
Xylene (-para & -meta)	12		5	U	1600		2200		10000	
1,3-Dichlorobenzene	5	U	5	U	5	U	2	J	50	U
1,4-Dichlorobenzene	2	J	5	U	5	U	5	U	62	
1,2-Dichlorobenzene	18		5	U	3	J	5	U	270	

Q-Laboratory Data Qualifiers
Refer to EPA Region 9 Laboratory Qualifier Definitions

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF UNVALIDATED RESULTS

Case Number: R97S25
Site: DC Metals
SDG: GM10
Date: 03/26/97

Analysis: GC/MS VOAS
Matrix: Low Level Water

Station Location Sample I.D. Date of Collection Units Analyte	GM113-022897 GM113 02/28/97 ug/L Result	Q	GM200-022897 GM200 02/28/97 ug/L Result	Q	CRQL ug/L Result	Q
Chloromethane	4	BJ	5	U	1	U
Bromomethane	5	U	2	J	1	U
Vinyl Chloride	5700		2	U	0.5	U
Chloroethane	30		5	U	1	U
Methylene Chloride	16000		1	J	1	U
Acetone	49000		50	U	10	U
Carbon Disulfide	5	U	5	U	1	U
1,1-Dichloroethene	5	U	5	U	1	U
1,1-Dichloroethane	4700		5	U	1	U
cis-1,2-Dichloroethene	12000		5	U	1	U
trans-1,2-Dichloroethene	5	U	5	U	1	U
Chloroform	5	U	5	U	1	U
1,2-Dichloroethane	21		2	U	1	U
1,2-Dibromo-3-chloropropane	5	U	5	U	1	U
1,2-Dibromoethane	5	U	5	U	1	U
2-Butanone	510000		50	U	10	U
1,1,1-Trichloroethane	5	U	5	U	1	U
Carbon Tetrachloride	2	U	2	U	1	U
Bromodichloromethane	5	U	5	U	1	U
1,2-Dichloropropane	5	U	5	U	1	U
cis-1,3-Dichloropropene	2	U	2	U	0.5	U
Trichloroethene	520		5	U	1	U
Dibromochloromethane	5	U	5	U	1	U
1,1,2-Trichloroethane	19		5	U	1	U
Benzene	310		5	U	1	U
trans-1,3-Dichloropropene	2	U	2	U	0.5	U
Bromoform	5	U	5	U	1	U
4-Methyl-2-pentanone	150000		50	U	10	U
2-Hexanone	36	J	50	U	10	U
Tetrachloroethene	60		5	U	1	U
1,1,2,2-Tetrachloroethane	1	J	5	U	1	U
Toluene	40000		5	U	1	U
Chlorobenzene	5	U	5	U	1	U
Ethyl Benzene	670		5	U	1	U
Styrene	5	U	5	U	1	U
Xylene (-ortho)	880		5	U	1	U
Xylene (-para & -meta)	2000		5	U	1	U
1,3-Dichlorobenzene	5	U	5	U	1	U
1,4-Dichlorobenzene	5	U	5	U	1	U
1,2-Dichlorobenzene	5	U	5	U	1	U

Q-Laboratory Data Qualifiers

Refer to EPA Region 9 Laboratory Qualifier Definitions

USEPA REGION 9 LABORATORY
CASE NARRATIVE

CASE NUMBER:	**R97S25**
SAMPLE DELIVERY GROUP:	**GM10**
PROGRAM:	**Superfund**
DOCUMENT CONTROL #:	**97-03-25-JN-1**
ANALYSIS PERFORMED:	**SEMI-VOLATILES**
DATE SUBMITTED:	**March 25,1997**
SAMPLE NUMBERS:	

EPA NUMBER	LAB SAMPLE ID.
GM10-022897	AB13953
GM11-022897	AB13955
GM12-022897	AB13953
GM13-022897	AB13956
GM14-022897	AB13958
GM113-022897	AB13957
GM200-022897	AB13959

GENERAL COMMENTS

Seven water samples from the DC Metals Superfund site were received at the EPA Region IX laboratory on 02/28/97.

The requested analysis included CLP semi-volatiles. All samples except GM11 and GM200 required dilution prior to analysis due to high levels of interfering compounds. The quantitation limits have been raised accordingly. All samples were otherwise analyzed in accordance with the OLM03.0 CLP Statement of Work.

SAMPLE RECEIPT, AND PRESERVATION

The samples were hand delivered to the laboratory. No shipping or preservation problems were encountered with these samples.

QA/QC AND ANALYTICAL COMMENTS

Method Blanks

A laboratory method blank is laboratory reagent water or baked sand with all reagents, surrogates, and internal standards added and carried through the same sample preparation and analytical procedures as the field samples. The laboratory method blank is used to determine the level of contamination introduced by the laboratory during extraction and analysis.

No target analytes were detected in the method blank extracted on 03/03/97.

Surrogates:

Surrogates are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with surrogate compounds prior to extraction. Surrogate percent recovery (%R) provides information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.

Sample GM-11 had one surrogate recovery that was below QC limits. The recovery for terphenyl-d_{14} was 17%. The QC limits are 33 - 114%. Surrogates were diluted out in all samples except GM-11 and GM-200.

Blank Spike

A Blank spike is laboratory reagent water or baked sand with all reagents, surrogates, internal standards and representative target compounds added and carried through the same sample preparation and analytical procedures as the field samples. The blank spike sample analyses provide information about the laboratory and method performance. Poor percent recovery (%R) results may indicate poor laboratory technique, or poor method performance for a particular class of compounds.

All percent recoveries were within QC limits.

Matrix Spike and Spike Duplicate Analysis (QC Sample: none)

Matrix spike sample and spike duplicate analyses provide information about the effect of the sample matrix on sample preparation and measurement. Poor percent recovery (%R) results and large relative percent difference (RPD) between duplicates may indicate poor laboratory technique, sample nonhomogeneity in soils, or matrix effects which may interfere with analysis.

No sample was designated as the QC sample. In addition, insufficient sample volume prevented the laboratory from extracting an MS and MSD.

Internal Standards:

Internal standards are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

All samples are spiked with internal standard compounds prior to analysis. Internal standard recoveries and retention times provides information about both the instrument performance on individual samples and the possible effects of the sample matrix on the analytical results.

All recoveries were within QC limits.

Miscellaneous Comments:

Significant retention time shifts were observed for some of the early eluting compounds in some of the samples. The retention time shifts are the result of high concentrations of non-target peaks. The retention time shift has no significant impact on the data, because target compound identification is based on both retention time and mass spectra.

All samples except GM11 and GM200 required dilution prior to analysis due to high levels of interference. The quantitation limits have been raised accordingly.

All other method criteria were met.

RESULTS SUMMARY

The results can be found on the Form I reports. On the Form I reports, the following qualifiers are used.

A	This tentatively identified compound is a suspected aldol-condensation product.
B	This analyte was detected in the associated method blank.
E	The amount detected exceeds the calibration range of the instrument.
J	The amount detected is less than CRQL and is only an estimated value.
N	The identification of this compound is based upon a mass spectral library search.
U	This compound was analyzed for, but not detected.

DISCLAIMER ON ROUNDING

Numerical results generated by Formaster may not match exactly with numbers generated from the same data, by other programs, or calculated manually. Formaster uses the *even/odd* rounding rule. This rounding rule states that if the digit preceding the last digit to be retained is odd, round up, and if the digit preceding the last digit to be retained is even, round down. If you round to the nearest integer, using the even/odd rule, the value 3.46 would be rounded up to 4, and 2.54 would be rounded down to 2.

Any questions in reference to this data package may be addressed to Joseph Naughten at (510)412-2358.

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF UNVALIDATED RESULTS

Case Number: R97S25 **Analysis:** BNA
Site: DC Metals **Matrix:** Water
SDG: GM10
Date: 03/25/97

Station Location Sample I.D. Date of Collection Units Analyte	GM10-022897 GM10 02/28/97 ug/L Result	Q	GM11-022897 GM11 02/28/97 ug/L Result	Q	GM12-022897 GM12 02/28/97 ug/L Result	Q	GM13-022897 GM13 02/28/97 ug/L Result	Q	GM14-022897 GM14 02/28/97 ug/L Result	Q
Phenol	50	U	10	U	190		51	U	5300	
bis(2-Chloroethyl)ether	50	U	10	U	50	U	51	U	200	U
2-Chlorophenol	50	U	10	U	50	U	51	U	200	U
1,3-Dichlorobenzene	50	U	10	U	50	U	51	U	200	U
1,4-Dichlorobenzene	50	U	10	U	50	U	51	U	200	U
1,2-Dichlorobenzene	50	U	10	U	50	U	51	U	200	U
2-Methylphenol	50	U	10	U	340		380		4300	
2,2'-oxybis(1-Chloropropane)	50	U	10	U	50	U	51	U	200	U
4-Methylphenol	50	U	10	U	370		1700		6200	
N-Nitroso-di-n-propylamine	50	U	10	U	50	U	51	U	200	U
Hexachloroethane	50	U	10	U	50	U	51	U	200	U
Nitrobenzene	50	U	10	U	50	U	51	U	200	U
Isophorone	50	U	10	U	50	U	51	U	200	U
2-Nitrophenol	50	U	10	U	50	U	51	U	200	U
2,4-Dimethylphenol	89		10	U	110		350		680	
bis(2-Chloroethoxy)methane	50	U	10	U	50	U	51	U	200	U
2,4-Dichlorophenol	50	U	10	U	50	U	51	U	200	U
1,2,4-Trichlorobenzene	50	U	10	U	50	U	51	U	200	U
Naphthalene	29	J	10	U	140		400		710	
4-Chloroaniline	50	U	10	U	50	U	51	U	200	U
Hexachlorobutadiene	50	U	10	U	50	U	51	U	200	U
4-Chloro-3-methylphenol	50	U	10	U	39	J	51	U	200	U
2-Methylnaphthalene	54		10	U	170		1900		4700	
Hexachlorocyclopentadiene	50	U	10	U	50	U	51	U	200	U
2,4,6-Trichlorophenol	50	U	10	U	50	U	51	U	200	U
2,4,5-Trichlorophenol	120	U	25	U	120	U	130	U	500	U
2-Chloronaphthalene	50	U	10	U	50	U	51	U	200	U
2-Nitroaniline	120	U	25	U	120	U	130	U	500	U
Dimethylphthalate	50	U	10	U	50	U	51	U	200	U
Acenaphthylene	50	U	10	U	50	U	51	U	200	U
2,6-Dinitrotoluene	50	U	10	U	50	U	51	U	200	U
3-Nitroaniline	120	U	25	U	120	U	130	U	500	U
Acenaphthene	50	U	10	U	50	U	51	U	98	J
2,4-Dinitrophenol	120	U	25	U	120	U	130	U	500	U
4-Nitrophenol	120	U	25	U	120	U	130	U	500	U
Dibenzofuran	50	U	10	U	50	U	51	U	200	U
2,4-Dinitrotoluene	50	U	10	U	50	U	51	U	200	U
Diethylphthalate	50	U	10	U	50	U	51	U	200	U
4-Chlorophenyl-phenylether	50	U	10	U	50	U	51	U	200	U
Fluorene	50	U	10	U	50	U	51	U	61	J
4-Nitroaniline	120	U	25	U	120	U	130	U	500	U
4,6-Dinitro-2-methylphenol	120	U	25	U	120	U	130	U	500	U
N-Nitrosodiphenylamine (1)	50	U	10	U	50	U	51	U	200	U
4-Bromophenyl-phenylether	50	U	10	U	50	U	51	U	200	U

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF UNVALIDATED RESULTS

Case Number: R97S25 **Analysis:** BNA
Site: DC Metals **Matrix:** Water
SDG: GM10
Date: 03/25/97

Station Location Sample I.D. Date of Collection Units Analyte	GM10-022897 GM10 02/28/97 ug/L Result	Q	GM11-022897 GM11 02/28/97 ug/L Result	Q	GM12-022897 GM12 02/28/97 ug/L Result	Q	GM13-022897 GM13 02/28/97 ug/L Result	Q	GM14-022897 GM14 02/28/97 ug/L Result	Q
Hexachlorobenzene	50	U	10	U	50	U	51	U	200	U
Pentachlorophenol	120	U	25	U	120	U	49	J	500	U
Phenanthrene	50	U	10	U	50	U	51	U	140	J
Anthracene	50	U	10	U	50	U	51	U	200	U
Carbazole	50	U	10	U	50	U	67		57	J
Di-n-butylphthalate	50	U	10	U	50	U	51	U	200	U
Fluoranthene	50	U	10	U	50	U	51	U	200	U
Pyrene	50	U	10	U	50	U	51	U	200	U
Butylbenzylphthalate	50	U	10	U	50	U	51	U	200	U
3,3'-Dichlorobenzidine	50	U	10	U	50	U	51	U	200	U
Benzo(a)anthracene	50	U	10	U	50	U	51	U	200	U
Chrysene	50	U	10	U	50	U	51	U	200	U
bis(2-Ethylhexyl)phthalate	50	U	10	U	50	U	51	U	200	U
Di-n-octylphthalate	50	U	10	U	50	U	51	U	200	U
Benzo(b)fluoranthene	50	U	10	U	50	U	51	U	200	U
Benzo(k)fluoranthene	50	U	10	U	50	U	51	U	200	U
Benzo(a)pyrene	50	U	10	U	50	U	51	U	200	U
Indeno(1,2,3-cd)pyrene	50	U	10	U	50	U	51	U	200	U
Dibenz(a,h)anthracene	50	U	10	U	50	U	51	U	200	U
Benzo(g,h,i)perylene	50	U	10	U	50	U	51	U	200	U

Q-Laboratory Data Qualifiers

Refer to EPA Region 9 Laboratory Qualifier Definitions

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF UNVALIDATED RESULTS

Case Number: R97S25 **Analysis:** BNA
Site: DC Metals **Matrix:** Water
SDG: GM10
Date: 03/25/97

Station Location Sample I.D. Date of Collection Units Analyte	GM113-022897 GM113 02/28/97 ug/L Result	Q	GM200-022897 GM200 02/28/97 ug/L Result	Q	Method Blank SBK01 N/A ug/L Result	Q	N/A CRQL N/A ug/L Result
Phenol	50	U	10	U	10	U	10
bis(2-Chloroethyl)ether	50	U	10	U	10	U	10
2-Chlorophenol	50	U	10	U	10	U	10
1,3-Dichlorobenzene	50	U	10	U	10	U	10
1,4-Dichlorobenzene	50	U	10	U	10	U	10
1,2-Dichlorobenzene	50	U	10	U	10	U	10
2-Methylphenol	320		10	U	10	U	10
2,2'-oxybis(1-Chloropropane)	50	U	10	U	10	U	10
4-Methylphenol	1500		10	U	10	U	10
N-Nitroso-di-n-propylamine	50	U	10	U	10	U	10
Hexachloroethane	50	U	10	U	10	U	10
Nitrobenzene	50	U	10	U	10	U	10
Isophorone	50	U	10	U	10	U	10
2-Nitrophenol	50	U	10	U	10	U	10
2,4-Dimethylphenol	55		10	U	10	U	10
bis(2-Chloroethoxy)methane	50	U	10	U	10	U	10
2,4-Dichlorophenol	50	U	10	U	10	U	10
1,2,4-Trichlorobenzene	50	U	10	U	10	U	10
Naphthalene	340		10	U	10	U	10
4-Chloroaniline	50	U	10	U	10	U	10
Hexachlorobutadiene	50	U	10	U	10	U	10
4-Chloro-3-methylphenol	50	U	10	U	10	U	10
2-Methylnaphthalene	1700		10	U	10	U	10
Hexachlorocyclopentadiene	50	U	10	U	10	U	10
2,4,6-Trichlorophenol	50	U	10	U	10	U	10
2,4,5-Trichlorophenol	120	U	25	U	25	U	25
2-Chloronaphthalene	50	U	10	U	10	U	10
2-Nitroaniline	120	U	25	U	25	U	25
Dimethylphthalate	50	U	10	U	10	U	10
Acenaphthylene	50	U	10	U	10	U	10
2,6-Dinitrotoluene	50	U	10	U	10	U	10
3-Nitroaniline	120	U	25	U	25	U	25
Acenaphthene	50	U	10	U	10	U	10
2,4-Dinitrophenol	120	U	25	U	25	U	25
4-Nitrophenol	120	U	25	U	25	U	25
Dibenzofuran	50	U	10	U	10	U	10
2,4-Dinitrotoluene	50	U	10	U	10	U	10
Diethylphthalate	50	U	10	U	10	U	10
4-Chlorophenyl-phenylether	50	U	10	U	10	U	10
Fluorene	50	U	10	U	10	U	10
4-Nitroaniline	120	U	25	U	25	U	25
4,6-Dinitro-2-methylphenol	120	U	25	U	25	U	25
N-Nitrosodiphenylamine (1)	50	U	10	U	10	U	10
4-Bromophenyl-phenylether	50	U	10	U	10	U	10

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF UNVALIDATED RESULTS

Case Number: R97S25 **Analysis:** BNA
Site: DC Metals **Matrix:** Water
SDG: GM10
Date: 03/25/97

Station Location Sample I.D. Date of Collection Units Analyte	GM113-022897 GM113 02/28/97 ug/L Result	Q	GM200-022897 GM200 02/28/97 ug/L Result	Q	Method Blank SBK01 N/A ug/L Result	Q	N/A CRQL N/A ug/L Result
Hexachlorobenzene	50	U	10	U	10	U	10
Pentachlorophenol	38	J	25	U	25	U	25
Phenanthrene	50	U	10	U	10	U	10
Anthracene	50	U	10	U	10	U	10
Carbazole	59		10	U	10	U	10
Di-n-butylphthalate	50	U	10	U	10	U	10
Fluoranthene	50	U	10	U	10	U	10
Pyrene	50	U	10	U	10	U	10
Butylbenzylphthalate	50	U	10	U	10	U	10
3,3'-Dichlorobenzidine	50	U	10	U	10	U	10
Benzo(a)anthracene	50	U	10	U	10	U	10
Chrysene	50	U	10	U	10	U	10
bis(2-Ethylhexyl)phthalate	50	U	10	U	10	U	10
Di-n-octylphthalate	50	U	10	U	10	U	10
Benzo(b)fluoranthene	50	U	10	U	10	U	10
Benzo(k)fluoranthene	50	U	10	U	10	U	10
Benzo(a)pyrene	50	U	10	U	10	U	10
Indeno(1,2,3-cd)pyrene	50	U	10	U	10	U	10
Dibenz(a,h)anthracene	50	U	10	U	10	U	10
Benzo(g,h,i)perylene	50	U	10	U	10	U	10

Q-Laboratory Data Qualifiers

Refer to EPA Region 9 Laboratory Qualifier Definitions

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GM10

Lab Name: US EPA REGION9 Contract: ESAT

Lab Code: REGION9 Case No.: R97S25 SAS No.: SDG No.: GM10

Matrix: (soil/water) WATER Lab Sample ID: AB13954

Sample wt/vol: 1000 (g/mL) ML Lab File ID: CE031004

Level: (low/med) LOW Date Received: 03/03/97

% Moisture: decanted: (Y/N) Date Extracted: 03/03/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/10/97

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 27

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown	8.15	53	J
2.		Benzene, C3 - substituted	10.30	29	J
3.		Benzene, C3 - substituted	11.08	73	J
4.		Unknown aromatic	11.47	24	J
5.		Unknown	13.14	270	J
6.		Unknown	13.53	31	J
7.		Unknown	14.02	130	J
8.		Unknown	14.33	1300	J
9.		Unknown	14.48	30	J
10.		Unknown	14.54	60	J
11.		Unknown	14.58	130	J
12.		Unknown	14.71	260	J
13.		Unknown	15.91	89	J
14.		Unknown	16.68	27	J
15.	98-54-4	Phenol, p-tert-butyl-	17.73	38	JN
16.	90-12-0	Naphthalene, 1- methyl	18.44	36	JN
17.		Unknown	18.65	18	J
18.		Unknown	21.02	22	J
19.	134-62-3	Diethyltoluamide	24.07	110	JN
20.	86-55-5	1-Naphthalenecarboxylic acid	26.09	56	JN
21.		Unknown	26.36	23	J
22.		Unknown	26.50	17	J
23.	104-40-5	4-Nonylphenol	26.64	18	JN
24.		Unknown	27.22	17	J
25.		Unknown phenol	29.45	36	J
26.		Unknown	30.47	57	J
27.		Unknown	30.72	18	J

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EPA SAMPLE NO.

GM11

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: US EPA REGION9 Contract: ESAT

Lab Code: REGION9 Case No.: R97S25 SAS No.: SDG No.: GM10

Matrix: (soil/water) WATER Lab Sample ID: AB13955

Sample wt/vol: 1020 (g/mL) ML Lab File ID: CE030604

Level: (low/med) LOW Date Received: 03/03/97

% Moisture: decanted: (Y/N) Date Extracted: 03/03/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/06/97

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown	8.68	3	J
2.		Unknown	9.15	3	J
3.		Unknown	16.69	8	J
4.		Unknown	20.15	3	J
5.		Unknown	25.64	5	J

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EPA SAMPLE NO.

GM14

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: US EPA REGION9 Contract: ESAT

Lab Code: REGION9 Case No.: R97S25 SAS No.: SDG No.: GM10

Matrix: (soil/water) WATER Lab Sample ID: AB13958

Sample wt/vol: 1000 (g/mL) ML Lab File ID: CE031007

Level: (low/med) LOW Date Received: 03/03/97

% Moisture: decanted: (Y/N) Date Extracted: 03/03/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/10/97

Injection Volume: 1.0(uL) Dilution Factor: 20.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 26

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown	8.35	800	J
2.		Unknown	8.61	420	J
3.		Unknown	8.75	370	J
4.		Benzene, C3 substituted	9.48	250	J
5.		Unknown alkane	10.33	310	J
6.		Unknown alcohol	10.75	300	J
7.		Unknown alkane	10.92	150	J
8.	1120-21-4	Undecane	12.92	360	JN
9.		Unknown	15.19	160	J
10.	629-50-5	Tridecane	17.78	170	JN
11.	90-12-0	Naphthalene, 1-methyl-	18.53	480	JN
12.		Unknown	18.90	180	J
13.		Unknown	18.97	480	J
14.		Unknown alkane	19.49	410	J
15.	629-59-4	Tetradecane	20.00	690	JN
16.		Naphthalene, ethyl	20.30	180	J
17.		Naphthalene, dimethyl	20.54	750	J
18.		Naphthalene, dimethyl	20.88	730	J
19.		Naphthalene, dimethyl	20.96	360	J
20.		Naphthalene, dimethyl	21.32	500	J
21.	629-62-9	Pentadecane	22.10	410	JN
22.	104-68-7	Ethanol, 2-(2-phenoxyethoxy)	22.65	160	JN
23.	134-62-3	Diethyltoluamide	24.06	240	JN
24.	120-51-4	Benzyl Benzoate	27.60	160	JN
25.	72-54-8	4,4'-DDD	35.82	420	JN
26.		Unknown	37.37	200	J

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EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

GM113

Lab Name: US EPA REGION9 Contract: ESAT

Lab Code: REGION9 Case No.: R97S25 SAS No.: SDG No.: GM10

Matrix: (soil/water) WATER Lab Sample ID: AB13957

Sample wt/vol: 1000 (g/mL) ML Lab File ID: CE030607

Level: (low/med) LOW Date Received: 03/03/97

% Moisture: decanted: (Y/N) Date Extracted: 03/03/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/06/97

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N). N pH: 7.0

Number TICs found: 23

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Benzene, C3 substituted	9.34	130	J
2.		Benzene, C3 substituted	9.52	72	J
3.		Benzene, C3 substituted	9.83	61	J
4.		Unknown	10.22	1100	J
5.		Benzene, C3 substituted	10.97	100	J
6.		Unknown	11.64	4200	J
7.		Unknown	13.42	80	J
8.		Unknown	14.28	120	J
9.		Unknown	15.56	89	J
10.		Unknown	18.19	59	J
11.	90-12-0	Naphthalene, 1-methyl-	18.37	300	JN
12.	501-52-0	Benzenepropanoic acid	18.90	160	JN
13.		Unknown	19.21	280	J
14.		Unknown	19.33	48	J
15.		Unknown	19.58	220	J
16.		Unknown	19.77	330	J
17.		Naphthalene, dimethyl substi	20.37	97	J
18.		Naphthalene, dimethyl substi	20.72	110	J
19.		Unknown	21.14	81	J
20.		Unknown	21.47	54	J
21.		Unknown	23.40	90	J
22.		Unknown	23.99	46	J
23.		Unknown	32.17	65	J

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EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

GM200

Lab Name: US EPA REGION9 Contract: ESAT

Lab Code: REGION9 Case No.: R97S25 SAS No.: SDG No.: GM10

Matrix: (soil/water) WATER Lab Sample ID: AB13959

Sample wt/vol: 1000 (g/mL) ML Lab File ID: CE030603

Level: (low/med) LOW Date Received: 03/03/97

% Moisture: decanted: (Y/N) Date Extracted: 03/03/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/06/97

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 8

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown	7.29	2	J
2.		Unknown	7.92	2	J
3.		Unknown	8.00	2	J
4.		Unkonwn	8.68	8	J
5.		Unknown	8.90	3	J
6.		Unknown	8.97	3	J
7.		Unknown	9.15	5	J
8.		Unknown	10.97	4	J

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

MEMORANDUM

DATE: 7/02/97

SUBJECT: Review of Analytical Data for DC Metals

FROM: Nancy Cockey, Chemist
Quality Assurance Program (QAP), PMD-3

THROUGH: Vance S. Fong, P.E., Manager
QAP, PMD-3

TO: Robert Mandel, On-Scene Coordinator
Emergency Response Office, SFD-6

Attached are comments resulting from EPA/QAP review of the following analytical data:

SITE:	DC Metals
EPA SSI NO.:	N/A
CERCLIS ID NO.:	N/A
CASE/SAS NO.:	R97S25
SDG NOs.:	GM10
LABORATORY:	EPA Region 9 Lab, Richmond
ANALYSIS:	CLPAS Metals
SAMPLE NO.:	7 Water Samples (see Case Summary)
COLLECTION DATE:	February 28, 1997
REVIEWER:	Nancy Cockey, Chemist EPA/QAP

If there are any questions, please contact me at (415) 744-1528.

Attachments

cc: Brenda Bettencourt, Laboratory Section, PMD-2

Data Validation Report

Case No.: R97S25
Site: DC Metals
Laboratory: EPA Region 9, Richmond
Reviewer: Nancy Cockey, EPA/QAP, PMD-3
Date: 7/02/97

I. Case Summary

SAMPLE INFORMATION:

Sample Numbers:	GM113, GM10 through GM14, and GM200
Matrix:	Water
Analysis:	CLPAS Metals
Collection Date:	February 28, 1997
Sample Receipt Date:	February 28, 1997
Analysis Date:	March 10-13, April 30, May 1,2 and 9, 1997

FIELD QC:

Trip Blanks (TB):	None
Field Blanks (FB):	GM200
Equipment Blanks (EB):	None
Background Samples (BG):	None
Field Duplicates (D1):	GM13, GM113

ANALYSIS DATES:

Analysis	Prep Date	Analysis Date
ICP Metals	March 10, 1997, April 29, 1997	March 10, 1997, May 2, 1997
GFAA Metals:		
Arsenic	March 10, 1997, April 29, 1997	March 10 and 11, 1997, April 30, 1997
Selenium	March 10, 1997, April 29, 1997	March 13, 1997, May 1, 1997
Thallium	March 10, 1997, April 29, 1997	March 12, 1997, April 30, 1997
CV: Mercury	March 8, 1997, May 8, 1997	March 11, 1997, May 9, 1997

Attachments:

Table 1A: Analytical Results with Qualifications
Table 1B: Data Qualifiers

TPO Action:

Sampling Issues: None

Other: None

TPO Attention:

Sampling Issues: Samples were not preserved in the field by the sampler. The sample custodian attempted to preserve the samples after arrival at the lab. She was only able to preserve GM11 and GM200.

Other: None

Additional Comments:

The analytes listed in the table below were analyzed using the methods specified in the EPA Contract Laboratory Program (CLP) Statement of Work (SOW) ILM04.0.

This report was prepared using professional judgement to assess the data quality using quality control criteria specified in the Client Request Forms (CRFs). The EPA document "National Functional Guidelines for Inorganic Data Review," (EPA-540/R-94-013), February, 1994) was used as guidance.

The sampler did not indicate a sample to be used for lab QC on the chain of custody form. As a result, the laboratory chose sample GM200 as the QC sample. Sample GM200 is a field blank and according to the Inorganic Functional Guidelines, samples identified as field blanks cannot be used for matrix spike, duplicate and ICP serial dilution analysis. The laboratory decided to choose another QC sample and reanalyze. The new QC samples are GM10 for ICP and GFAA and GM12 for CV mercury.

II. Validation Summary

	Acceptable	Comment
Sample Preservation and Holding Times	[NO]	[G]
Calibration	[YES]	[J]
a. Initial Calibration Verification		
b. Continuing Calibration Verification		
c. Calibration Blank		
d. CRDL Standard		
Laboratory Preparation Blank	[YES]	[F]
ICP Interference Check Sample Analysis	[YES]	[ ]
Laboratory Control Sample Analysis	[YES]	[ ]
Matrix Spike Analysis	[NO]	[H]
ICP Serial Dilution	[YES]	[I]
GFAA QC	[NO]	[CE]
a. Analytical Spikes		
b. Duplicate Injections		
Laboratory Duplicates	[YES]	[ ]
Field QC Samples	[YES]	[ ]
a. Field Duplicate Sample Analysis		
b. Field Blank		
Sample Quantitation	[YES]	[ABD]

III. Validity and Comments

A. The following results are estimated and qualified "J" (see Table 1A).

* All results above the instrument detection limit but below the contract required detection limit (denoted with an "L" qualifier)

Results above the instrument detection limit (IDL) for waters but below the contract required detection limit (CRDL) are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

B. The following results are estimated and qualified "UJ" and "J" (see Table 1A).

* Lead in samples GM11 and GM12.

According to the Inorganic Statement of Work (ILM04.0), results obtained by ICP for lead must exceed five times the ICP MDL. The result reported in the samples listed above were not greater than five times the MDL. Therefore, the result is considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

C. The following results are estimated or rejected because of Graphite Furnace Atomic Absorption (GFAA) analytical spike recovery results outside method QC limits. The results are qualified "UJ", "J" and "R" (see Table 1A).

* Selenium in samples GM10, GM13, GM113 and GM14.

* Thallium in samples GM12, GM10, GM11, GM13, GM113 and GM14.

Analyte	Sample Number	% Recovery
Selenium	GM10	51
Selenium	GM13	76
Selenium	GM113	82
Selenium	GM14	73
Thallium	GM12	80
Thallium	GM10	48
Thallium	GM11	54
Thallium	GM13	56
Thallium	GM113	61
Thallium	GM14	6

Arsenic, selenium and thallium were analyzed by the GFAA technique, which requires that a post-digestion analytical spike be performed for each sample to establish the accuracy of the individual analytical determination. The analytical spike recovery results for arsenic, selenium and thallium in the samples listed above did not meet the 85-115% criteria for accuracy. The post-digestion spike recovery results for the two analytes in the samples listed above show an analytical deficiency. Results above the IDL (or MDL) are considered quantitatively uncertain. The results reported for the analytes in the samples listed above may be biased low, and where non-detected, false negatives may exist.

D. The detection limits for certain samples were raised due to the use of dilution to control matrix interference. Samples GM12, GM10, GM11, GM13, GM14 and GM113 were diluted by a factor of 10 for selenium and thallium due to matrix interferences.

E. The following results are estimated because the Method of Standard Addition (MSA) correlation coefficient for linearity was less than 0.995. The results are qualified "J" (see Table 1A).

* Arsenic in samples GM10 and GM14.

The MSA is the addition of 3 increments of a standard solution to sample aliquots of the same size. Measurements are made on the original sample and on each addition. The absorbance of each solution is determined and then plotted on the vertical (y) axis of a graph, with the concentrations of the known standards plotted on the horizontal (x) axis. When the resulting line is extrapolated back to zero absorbance, the intercept on the negative horizontal axis is the concentration of the sample. This technique compensates for a sample constituent that enhances or depresses the analyte signal thus producing a slope different from that of a calibration standard prepared in reagent water. When this linearity criterion is not met, the results may have an increased variability.

The correlation coefficient (r) is a statistical measure of linear association. A correlation coefficient, r = 1, means all of the points lie exactly on a straight line. The closer the correlation coefficient is to 1, the stronger is the linear association between the instrument reading and concentration. The MSA correlation coefficient for arsenic in samples GM10 and GM14 did not meet the greater than or equal to 0.995 criterion for linearity as shown below.

Analyte	Sample Number	Correlation Coefficient
Arsenic	GM10	0.9925
Arsenic	GM14	0.9926

F. A preparation blank is an analytical control that contains distilled, deionized water and reagents, which is carried through the entire analytical procedure.

Aluminum and sodium were detected above the IDL but below the contract required detection limit (CRDL) in the preparation blank. Since the levels detected were below the CRDL, the associated samples were not flagged.

G. The following results are estimated due to inadequate sample preservation. The results are qualified "J" and "UJ" (see Table 1A).

* All the analytes in samples GM10, GM12, GM13, GM14 and GM113.

The samples were not adequately preserved in the field to a pH of less than 2.0. Sample results may be biased low, and where non-detected, false negatives may exist.They arrived at the laboratory at pH greater than 2.0. It is not known whether the sampler attempted to preserve the samples. The laboratory attempted to preserve the samples to a pH less than 2.0 by the addition of 5.0 mL of 1:1 nitric acid. The samples were originally at such a highly alkaline state that the desired pH could not be reached.

H. The following results are estimated or rejected because of matrix spike recovery results outside method QC limits. The results are qualified "UJ","J" and "R" (see Table 1A).

* Antimony in all samples are rejected.

* Arsenic in all samples are estimated.

* Selenium in all samples are rejected.

* Silver in all samples are estimated.

* Thallium in all samples are rejected.

* Zinc in all samples are estimated.

The matrix spike sample analysis provides information about the effect of the sample matrix on the digestion and measurement methodology. The matrix spike recovery results for antimony, arsenic, selenium, silver, thallium and zinc did not meet the 75-125% criteria for accuracy.

Analyte	% Recovery
Antimony	0
Arsenic	25
Selenium	0
Silver	48.2
Thallium	0
Zinc	73.2

The not-detected results for antimony, selenium, arsenic and thallium may be biased low and false negatives may exist as less than 30% of the matrix spike was recovered. The silver and zinc results reported for the samples listed above may be biased low.

I. The following result is estimated because of an ICP serial dilution result outside method QC limits. The results are qualified "J" (see Table 1A).

* Potassium in all samples are estimated.

A five fold dilution of the laboratory QC sample is performed in association with the ICP procedure to indicate whether interference exists due to sample matrix effects. If the analyte concentration is sufficiently high (minimally a factor of 50 above the IDL in the original sample), the five fold serial dilution must agree within 10% of the original results after correction for dilution. The percent difference of the ICP serial dilution analysis of sample number GM10 did not meet the less than 10% criterion for the analytes shown below.

Analyte	% Difference
Potassium	13.0

The results reported for potassium in all of the samples are considered quantitatively uncertain. Chemical and physical interferences may exist due to sample matrix effects.

J. The following result is estimated non-detect "UJ" because of a calibration problem with the cold vapor mercury analysis. The result is qualified "J"(see Table 1A).

* Mercury in sample GM12 is estimated.

Sample GM12 was originally analyzed on March 11, 1997 and had a result of 0.063 ug/L which was below the IDL of 0.1 ug/L. The same sample was reanalyzed on May 9, 1997 and had a result of 0.13 ug/L. The basis for the difference in the results could be the calibration blanks results. The difference may cause a negative bias in the sample results. In the reviewer's opinion, the bias above the CRDL of 0.2 ug/L will be negligible. Therefore the result was qualified "UJ" at the CRDL.

ANALYTICAL RESULTS

TABLE 1A

VALIDATED DATA

Case No.: R97S25 (SDG:GM10)

Site: DC Metals

Lab.: Region 9, Richmond

Reviewer: Nancy Cockey, EPA/QAP

Date: July 2, 1997

Analysis Type: CLPAS Metals

Concentration in ug/L

Station Location	GM10-022897			GM11-022897			GM12-022897			GM13-022897			GM14-022897			GM113-022897			GM200-022897		
Sample I.D.	GM10			GM11			GM12			GM13 D1			GM14			GM113 D1			GM200 FB		
Date of Collection	02/28/97			02/28/97			02/28/97			02/28/97			02/28/97			02/28/97			02/28/97		
Analyte	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	574000 J	J	FG	95500 J	J	F	61900 J	J	FG	241000 J	J	FG	244000 J	J	FG	243000 J	J	FG	65.6 L	J	AF
Antimony	18.1 U	R	GH	18.1 U	R	H	18.1 U	R	GH	18.1 U	R	GH	18.1 U	R	GH	18.1 U	R	GH	18.1 U		
Arsenic	38.5 J	J	EGH	36.3 J	J	H	50.7 J	J	GH	44.1 J	J	GH	43.6 J	J	EGH	42.7 J	J	GH	1.4 U		
Barium	2150 J	J	G	520			497 J	J	G	1880 J	J	G	2950 J	J	G	1890 J	J	G	1.1 U		
Beryllium	11.4 J	J	G	1.9 L	J	A	1.2 L	J	AG	4.2 L	J	AG	6.0 J	J	G	4.2 L	J	AG	0.20 U		
Cadmium	27.2 J	J	G	3.4 L	J	A	2.1 L	J	AG	14.2 J	J	G	70.9 J	J	G	14.6 J	J	G	1.8 U		
Calcium	183000 J	J	G	480000			57700 J	J	G	578000 J	J	G	507000 J	J	G	580000 J	J	G	37.2 L	J	A
Chromium	2400 J	J	G	306			243 J	J	G	799 J	J	G	2380 J	J	G	805 J	J	G	2.9 U		
Cobalt	328 J	J	G	61.5			35.4 L	J	AG	122 J	J	G	193 J	J	G	121 J	J	G	2.9 U		
Copper	483 J	J	G	71.7			58.0 J	J	G	215 J	J	G	454 J	J	G	214 J	J	G	3.3 U		
Iron	748000 J	J	G	110000			98700 J	J	G	334000 J	J	G	655000 J	J	G	335000 J	J	G	23.7 L	J	A
Lead	402 J	J	G	40.0 U	J	B	40.0 U	J	BG	261 J	J	G	1220 J	J	G	215 J	J	G	40.0 U		
Magnesium	237000 J	J	G	72500			71800 J	J	G	407000 J	J	G	95500 J	J	G	404000 J	J	G	34.3 U		
Manganese	7700 J	J	G	13300			2920 J	J	G	29200 J	J	G	20000 J	J	G	29100 J	J	G	0.57 L	J	A
Mercury	3.7 J	J	G	0.35			0.20 U	J	ABG	1.0 J	J	G	2.7 J	J	G	1.1 J	J	G	0.10 U		
Nickel	2000 J	J	G	325			245 J	J	G	816 J	J	G	823 J	J	G	824 J	J	G	7.3 U		
Potassium	51300 J	J	GI	16200 J	J	I	7630 J	J	GI	25900 J	J	GI	77900 J	J	GI	25800 J	J	GI	892 U		
Selenium	8.0 U	R	CDGH	8.0 U	R	DH	8.0 U	R	DGH	8.0 U	R	DG	8.0 U	R	DG	8.0 U	R	DG	0.80 U		
Silver	20.5 U	J	GH	4.1 U	J	H	4.1 U	J	GH	20.5 U	J	GH	20.5 U	J	GH	20.5 U	J	GH	4.1 U		
Sodium	641000	J	FG	70800		F	705000	J	FG	512000	J	FG	222000	J	FG	500000	J	FG	249 L	J	AF
Thallium	16.0 U	R	CDGH	16.0 U	R	CDH	16.0 U	R	CDGH	16.0 U	R	DG	16.0 U	R	DG	16.0 U	R	DG	1.6 U		
Vanadium	1280 J	J	G	228			168 J	J	G	560 J	J	G	592 J	J	G	564 J	J	G	2.8 U		
Zinc	1440 J	J	GH	225 J	J	H	162 J	J	GH	578 J	J	GH	1250 J	J	GH	586 J	J	GH	1.9 U		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter

IDL- Method Detection Limit for Waters

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample

CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS

TABLE 1A

Case No.: R97S25 (SDG:GM10)

Site: DC Metals

Lab.: Region 9, Richmond

VALIDATED DATA

Analysis Type: CLPAS Metals

Reviewer: Nancy Cockey, EPA/QAP

Date: July 2, 1997

Concentration in ug/L

Station Location	N/A																													
Sample I.D.	Lab Blank																													
Date of Collection	N/A																													
Analyte	**Result**		**Val**	**Com**	**Result**			**Result**																						
Aluminum	50.5	L	J	A	200.0			15.9																						
Antimony	18.1	U			60.0			16.7																						
Arsenic	1.4	U			10.0			1.2																						
Barium	1.1	U			200.0			0.8																						
Beryllium	0.20	U			5.0			0.2																						
Cadmium	1.8	U			5.0			1.3																						
Calcium	13.0	U			5000.0			4.6																						
Chromium	2.9	U			10.0			2.4																						
Cobalt	2.9	U			50.0			2.8																						
Copper	3.3	U			25.0			2.2																						
Iron	3.4	U			100.0			3.3																						
Lead	40.0	U			40.0			19.3																						
Magnesium	34.3	U			5000.0			25.5																						
Manganese	0.50	U			15.0			0.3																						
Mercury	0.10	U			0.20			0.10																						
Nickel	7.3	U			40.0			6.3																						
Potassium	892	U			5000.0			668.8																						
Selenium	0.80	U			5.0			0.9																						
Silver	4.1	U			10.0			2.9																						
Sodium	207	L	J	A	5000.0			14.8																						
Thallium	1.6	U			10.0			1.3																						
Vanadium	2.8	U			50.0			2.0																						
Zinc	1.9	U			20.0			0.9																						

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Method Detection Limit for Waters

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample

CRDL-Contract Required Detection Limit

TABLE 1B
DATA QUALIFIERS

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

DATA SUMMARIES

Sample Marix: Groundwater
Analysis: RAP Volatile
Sample Date(s): 6/17/97
Laboratory: EPA Region IX Laboratory

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

May 15, 1998

MEMORANDUM

SUBJECT: Review of Analytical Data

FROM: Mathew C. Plate, Chemist
Quality Assurance Program, PMD-3

THROUGH: Vance S. Fong, P.E., Manager
Quality Assurance Program, PMD-3

TO: Robert Mandel, On Scene Coordinator
Emergency Response Office, SFD-6

Attached are comments resulting from QAP Region IX review of the following analytical data:

SITE:	DC Metals
EPA SSI NO.:	NA
CERCLIS ID NO.:	NA
CASE/SAS NO.:	R97S33
SDG NO.:	061797
LABORATORY:	Region IX
ANALYSIS:	RAP Volatiles
SAMPLE NO.:	7 Water Samples (see Case Summary)
COLLECTION DATE:	June 17, 1997
REVIEWER:	Mathew C. Plate QAP,PMD-3/USEPA

If there are any questions, please contact me at (415)744-1493.

Attachment
cc: Brenda Bettencourt, PMD-2

Data Validation Report

Case No.: R97S33
Site: DC Metals
Laboratory: Region IX
Reviewer: Mathew C. Plate, QAP, PMD-3/USEPA
Date: May 15, 1998

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers:	GW10, GW11, GW113, GW12, GW13, GW14 and GWFB
Concentration and Matrix:	Water
Analysis:	RAP Volatiles
SOW:	3/90 (July 1993 revision)
Collection Date:	June 17, 1997
Sample Receipt Date:	June 17, 1997
Extraction Date:	June 18, 1997
Analysis Date:	June 25 through 26, 1997; and July 10, 1997

FIELD QC:

Trip Blanks (TB):	None
Field Blanks (FB):	None
Equipment Blanks (EB):	None
Background Samples (BG):	None
Field Duplicates (D1):	None

METHOD BLANKS AND ASSOCIATED SAMPLES:

VBLK0001:	SYL470, SYL472, SYL473 and SYL474
VBLK0002:	SYL447, SYL448, SYL450, SYL451, SYL458, SYL463, SYL464, SYL471, SYL475, SYL476, SYL477 and SYL478
VBLK0003:	SYL445, SYL460DL, SYL463DL, SYL479, SYL479MS and SYL479MSD
VBLK0004:	SYL460, SYL479DL and VHBLK01

TABLES:

1A:	Analytical Results with Qualifications
1B:	Data Qualifiers

TPO ACTION:

SAMPLING ISSUES: None.

OTHER: None.

TP ATTENTION:

SAMPLING ISSUES: None.

OTHER: None.

ADDITIONAL COMMENTS:

The analytical results with qualifications are listed in Table 1A. This report was prepared in accordance with EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994.

2-Butanone results in samples GW12 and GW14 varied greatly between the initial and diluted analyses, and may be biased low by several orders of magnitude (see Validity and Comments, "E"). The laboratory was requested to supply additional information on the evaluation of 2-Butanone on January 14, 1998, and several times subsequently. Without the requested information, the discrepancy in these results could not be verified or corrected, and these results must be estimated (J).

II. Validation Summary

	VOA Acceptable/Comment	
HOLDING TIMES	[YES]	[A]
GC/MS TUNE/GC PERFORMANCE	[YES]	[ ]
CALIBRATIONS	[YES]	[ ]
FIELD QC	[YES]	[ ]
LABORATORY BLANKS	[YES]	[ ]
SURROGATES	[YES]	[B]
MATRIX SPIKE/DUPLICATES	[YES]	[ ]
INTERNAL STANDARDS	[YES]	[ ]
COMPOUND IDENTIFICATION	[YES]	[E]
COMPOUND QUANTITATION	[YES]	[C,D,E]
SYSTEM PERFORMANCE	[YES]	[ ]

III. Introduction

Seven (7) water samples from the DC Metals site were submitted to the EPA Region IX laboratory for RAP volatile organic analyses on June 17, 1997.

IV. Validity and Comments

A) Due to holding time outside analytical QC limits, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A).

- All analytes reported from the un-diluted analysis of samples GW113 and GW13.
- All analytes reported from the un-diluted analysis of sample GW12.
- All analytes reported from the un-diluted analysis of sample GW14.

The above samples exceeded the 7 day 40 CFR 136/SW-846 technical holding time for non-preserved samples by 1 day. The samples are treated as non-preserved due to cooler temperatures not being recorded upon receipt.

The detected results for the samples listed above may be biased low and are the minimum values at which these analytes may be present in the samples. Analytes reported from dilutions, analyzed at an earlier date were not qualified. Where the results are nondetected, false negatives may exist.

B) Due to surrogate recovery outside method QC limits, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- Chloroethane, 1,1-Dichloroethene, trans-1,2-Dichloroethene, 1,2-Dichloroethane, Trichloroethene, 1,1,2-Trichloroethane, Benzene, 2-Hexanone, Tetrachloroethene, Ethyl Benzene, o-Xylene, m&p-Xylene and 1,2-Dichlorobenzene in sample GW113.
- Chloroethane, 1,1-Dichloroethene, trans-1,2-Dichloroethene, 1,2-Dichloroethane, 1,2-Dichloropropane, Trichloroethene, 1,1,2-Trichloroethane, Benzene, 2-Hexanone, Tetrachloroethene and 1,2-Dichlorobenzene in sample GW13.

Surrogates are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

All samples are spiked with surrogate compounds prior to purging. Surrogates provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.

Recoveries of 120% and 127% were reported for the surrogate Toluene-d8 in samples GW113 and GW13, respectively. The QC advisory validation criterion for Toluene-d8 recovery is 88 - 110%. Recoveries of 128% and 128% were reported for the surrogate 1,2-Dichloroethane-d4 in samples GW113 and GW13, respectively. The QC advisory validation criterion for 1,2-Dichloroethane-d4 recovery is 76 - 114%. The reported results for the above analytes should be considered as the maximum value at which these analytes may be present in the samples.

C) Due to high analyte concentration, the detected results for the following analytes are estimated (J) (see Table 1A):

- 2-Butanone in sample GW113 and GW13.
- 4-Methyl-2-pentanone in sample GW113 and GW13.

The concentrations of 2-Butanone in samples GW113 and GW13 were 6,600,000 and 5,200,000, respectively. The concentrations of 4-Methyl-2-pentanone in samples GW113 and GW13 were 440,000 and 370,000, respectively. These value significantly exceeded their respective upper calibration limit of 200,000 ug/L. The results reported for these analyte are quantitatively questionable and should be considered as the minimum values at which they are present in the samples.

D) The following results are estimated and flagged "J" in Table 1A:

- All results below the Contract Required Quantitation Limits (denoted with an "L" qualifier)

Results below the Contract Required Quantitation Limits (CRQL) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

E) Due to inconsistent results between dilutions, the detected results for the following analyte is estimated (J) (see Table 1A):

- 2-Butanone in samples GW12 and GW14.

Dilutions of sample GW12 were analyzed at 10, 50 and 500 times. Dilutions of sample GW14 were analyzed at 10, 50 and 1000 times. Detected values from these dilutions are inconsistent, with 190% and 160% relative percent differences (RPD) between the 10 and the 50 time dilutions for sample GW12 and GW14, respectively. It was also noted that the ion pattern match for the 50 time dilution (which both results were reported from) did not indicate a good match with the reference spectra. The data indicates a significant low bias. The reported values should be considered minimum values at which these analytes are present in the samples.

ANALYTICAL RESULTS

Table 1A

Case No. R97S33 (061797)

Site: DC Metals

Laboratory: Region 9, Richmond

Reviewer: Mathew C. Plate, USEPA/QAP

Date: May 15, 1998

Analysis GC/MS VOAS

Matrix Water

Concentration in µg/L

Station Location	GW10				GW11				GW113				GW12				GW13			
Sample I.D.	GW10				GW11				GW113				GW12				GW13			
Date of Collection	06/17/97				06/17/97				06/17/97				06/17/97				06/17/97			
Analyte	ug/L		Val	Com	ug/L		Val	Com	ug/L		Val	Com	ug/L		Val	Com	ug/L		Val	Com
Chloromethane	10	U			10	U			100	U	J	A	100	U	J	A	100	U	J	A
Bromomethane	10	U			10	U			100	U	J	A	100	U	J	A	100	U	J	A
Vinyl Chloride	200				39				4900		J	A	6900	D			5300		J	A
Chloroethane	72				10	U			84	L	J	ABD	120		J	A	78	L	J	ABD
Methylene Chloride	10	U			10	U			140000	D			310		J	A	130000	D		
Acetone	10	U			10	U			140000	D			1600	D			110000	D		
Carbon Disulfide	10	U			10	U			100	U	J	A	100	U	J	A	100	U	J	A
1,1-Dichloroethene	13				10	U			96	L	J	ABD	560		J	A	100		J	AB
1,1-Dichloroethane	250				10				3900		J	A	2000		J	A	4500		J	A
cis-1,2-Dichloroethene	970				53				7100		J	A	42000	D			8100		J	A
trans-1,2-Dichloroethene	16	U			10	U			41	L	J	ABD	330		J	A	43	L	J	ABD
Methyl t-Butyl Ether	10	U			10	U			100	U	J	A	100	U	J	A	100	U	J	A
Chloroform	10	U			10	U			100	U	J	A	100	U	J	A	100	U	J	A
1,2-Dichloroethane	10	U			10	U			1000		J	AB	100	U	J	A	1100		J	AB
1,3-Dichloropropane	10	U			10	U			100	U	J	A	100	U	J	A	100	U	J	A
1,2,3,-Trichloropropane	10	U			10	U			100	U	J	A	100	U	J	A	100	U	J	A
1,2-Dibromo-3-chloropropane	10	U			10	U			100	U	J	A	100	U	J	A	100	U	J	A
1,2-Dibromoethane	10	U			10	U			100	U	J	A	100	U	J	A	100	U	J	A
2-Butanone	10	U			10	U			6600000	D	J	C	1000	D	J	E	5200000	D	J	C
1,1,1-Trichloroethane	10	U			10	U			100	U	J	A	5000	D			100	U	J	A
Carbon Tetrachloride	10	U			10	U			100	U	J	A	100	U	J	A	100	U	J	A
Bromodichloromethane	10	U			10	U			100	U	J	A	100	U	J	A	100	U	J	A
1,2-Dichloropropane	10	U			10	U			100	U	J	A	100	U	J	A	22	L	J	ABD
cis-1,3-Dichloropropene	10	U			10	U			100	U	J	A	100	U	J	A	100	U	J	A
Trichloroethene	78				8	L	J	D	1300		J	AB	6400	D			860		J	AB
Dibromochloromethane	10	U			10	U			100	U	J	A	100	U	J	A	100	U	J	A
1,1,2-Trichloroethane	10	U			10	U			26	L	J	ABD	42	L	J	A	23	L	J	ABD
Benzene	46				10	U			730		J	AB	220		J	A	840		J	AB
trans-1,3-Dichloropropene	10	U			10	U			100	U	J	A	100	U	J	A	100	U	J	A
Bromoform	10	U			10	U			100	U	J	A	100	U	J	A	100	U	J	A
4-Methyl-2-pentanone	10	U			10	U			440000	D	J	C	2100	D			370000	D	J	C
2-Hexanone	10	U			10	U			590		J	AB	100	U	J	A	710		J	AB
Tetrachloroethene	110				10	U			88		J	AB	56	L	J	A	85	L	J	ABD
1,1,2,2-Tetrachloroethane	10	U			10	U			100	U	J	A	100	U	J	A	100	U	J	A
Toluene	10	U			10	U			45000	D			26000	D			43000	D		
Chlorobenzene	4	L	J	D	10	U			100	U	J	A	100	U	J	A	100	U	J	A
Ethyl Benzene	10	U			10	U			490		J	AB	200		J	A	490		J	A
Styrene	10	U			10	U			100	U	J	A	100	U	J	A	100	U	J	A
Xylene (-ortho)	10	U			10	U			840		J	AB	480		J	A	810		J	A
Xylene (-para & -meta)	10	U			10	U			1900		J	AB	940		J	A	1900		J	A
1,3-Dichlorobenzene	2	L	J	D	10	U			100	U	J	A	100	U	J	A	100	U	J	A
1,4-Dichlorobenzene	10	U			10	U			100	U	J	A	100	U	J	A	100	U	J	A
1,2-Dichlorobenzene	10	U			10	U			23	L	J	ABD	100	U	J	A	21	L	J	ABD

Val-Validity Refer to Data Qualifiers in Table 1B.

Com-Comments Refer to the Corresponding Section in the Narrative for each letter

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank

TB-Trip Blank, BG-Background Sample

D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S33 (061797)
Site: DC Metals
Laboratory: Region 9, Richmond
Reviewer: Mathew C. Plate, USEPA/QAP
Date: May 15, 1998

Analysis GC/MS VOAS
Matrix Water

Concentration in µg/L

Station Location	~~GW14~~				GWFB				Method Blank				Method Blank				Method Blank			
Sample I.D.	GW14				GWFB				VBLK01				VBLK03				VBLK05			
Date of Collection	06/17/97																			
Analyte	ug/L		Val	Com	ug/L		Val	Com	ug/L		Val	Com	ug/L		Val	Com	ug/L		Val	Com
Chloromethane	500	U	J	A	10	U			10	U			10	U			10	U		
Bromomethane	500	U	J	A	10	U			10	U			10	U			10	U		
Vinyl Chloride	590		J	A	10	U			10	U			10	U			10	U		
Chloroethane	120	L	J	AD	10	U			10	U			10	U			10	U		
Methylene Chloride	130000	D			10	U			10	U			10	U			10	U		
Acetone	17000	D			10	U			10	U			10	U			10	U		
Carbon Disulfide	500	U	J	A	10	U			10	U			10	U			10	U		
1,1-Dichloroethene	530		J	A	10	U			10	U			10	U			10	U		
1,1-Dichloroethane	20000	D			10	U			10	U			10	U			10	U		
cis-1,2-Dichloroethene	28000	D			10	U			10	U			10	U			10	U		
trans-1,2-Dichloroethene	190	L	J	AD	10	U			10	U			10	U			10	U		
Methyl t-Butyl Ether	500	U	J	A	10	U			10	U			10	U			10	U		
Chloroform	400	L	J	AD	10	U			10	U			10	U			10	U		
1,2-Dichloroethane	1200		J	A	10	U			10	U			10	U			10	U		
1,3-Dichloropropane	500	U	J	A	10	U			10	U			10	U			10	U		
1,2,3,-Trichloropropane	500	U	J	A	10	U			10	U			10	U			10	U		
1,2-Dibromo-3-chloropropane	500	U	J	A	10	U			10	U			10	U			10	U		
1,2-Dibromoethane	500	U	J	A	10	U			10	U			10	U			10	U		
2-Butanone	16000		J	E	10	U			10	U			10	U			10	U		
1,1,1-Trichloroethane	14000	D			10	U			10	U			10	U			10	U		
Carbon Tetrachloride	500	U	J	A	10	U			10	U			10	U			10	U		
Bromodichloromethane	500	U	J	A	10	U			10	U			10	U			10	U		
1,2-Dichloropropane	500	U	J	A	10	U			10	U			10	U			10	U		
cis-1,3-Dichloropropene	500	U	J	A	10	U			10	U			10	U			10	U		
Trichloroethene	250000	D			10	U			10	U			10	U			10	U		
Dibromochloromethane	500	U	J	A	10	U			10	U			10	U			10	U		
1,1,2-Trichloroethane	420	L	J	AD	10	U			10	U			10	U			10	U		
Benzene	1200		J	A	10	U			10	U			10	U			10	U		
trans-1,3-Dichloropropene	500	U	J	A	10	U			10	U			10	U			10	U		
Bromoform	500	U	J	A	10	U			10	U			10	U			10	U		
4-Methyl-2-pentanone	23000	D			10	U			10	U			10	U			10	U		
2-Hexanone	500	U	J	A	10	U			10	U			10	U			10	U		
Tetrachloroethene	6000		J	A	10	U			10	U			10	U			10	U		
1,1,2,2-Tetrachloroethane	500	U	J	A	10	U			10	U			10	U			10	U		
Toluene	47000	D			10	U			10	U			10	U			10	U		
Chlorobenzene	500	U	J	A	10	U			10	U			10	U			10	U		
Ethyl Benzene	850		J	A	10	U			10	U			10	U			10	U		
Styrene	500	U	J	A	10	U			10	U			10	U			10	U		
Xylene (-ortho)	1400		J	A	10	U			10	U			10	U			10	U		
Xylene (-para & -meta)	3200		J	A	10	U			10	U			10	U			10	U		
1,3-Dichlorobenzene	500	U	J	A	10	U			10	U			10	U			10	U		
1,4-Dichlorobenzene	500	U	J	A	10	U			10	U			10	U			10	U		
1,2-Dichlorobenzene	500	U	J	A	10	U			10	U			10	U			10	U		

Val-Validity Refer to Data Qualifiers in Table 1B
Com-Comments Refer to the Corresponding Section in the Narrative for each letter
CRQL-Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank
TB-Trip Blank, BG-Background Sample
D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S33 (061797)

Site: DC Metals

Laboratory: Region 9, Richmond

Reviewer: Mathew C. Plate, USEPA/QAP

Date: May 15, 1998

Analysis GC/MS VOAS

Matrix Water

Concentration in µg/L

Station Location	Storage Blank				CRQL														
Sample I.D.	VHBLK061697																		
Date of Collection																			
Analyte	ug/L		Val	Com	ug/L														
Chloromethane	10	U			10	U													
Bromomethane	10	U			10	U													
Vinyl Chloride	10	U			10	U													
Chloroethane	10	U			10	U													
Methylene Chloride	10	U			10	U													
Acetone	10	U			10	U													
Carbon Disulfide	10	U			10	U													
1,1-Dichloroethene	10	U			10	U													
1,1-Dichloroethane	10	U			10	U													
cis-1,2-Dichloroethene	10	U			10	U													
trans-1,2-Dichloroethene	10	U			10	U													
Methyl t-Butyl Ether	10	U			10	U													
Chloroform	10	U			10	U													
1,2-Dichloroethane	10	U			10	U													
1,3-Dichloropropane	10	U			10	U													
1,2,3,-Trichloropropane	10	U			10	U													
1,2-Dibromo-3-chloropropane	10	U			10	U													
1,2-Dibromoethane	10	U			10	U													
2-Butanone	10	U			10	U													
1,1,1-Trichloroethane	10	U			10	U													
Carbon Tetrachloride	10	U			10	U													
Bromodichloromethane	10	U			10	U													
1,2-Dichloropropane	10	U			10	U													
cis-1,3-Dichloropropene	10	U			10	U													
Trichloroethene	10	U			10	U													
Dibromochloromethane	10	U			10	U													
1,1,2-Trichloroethane	10	U			10	U													
Benzene	10	U			10	U													
trans-1,3-Dichloropropene	10	U			10	U													
Bromoform	10	U			10	U													
4-Methyl-2-pentanone	10	U			10	U													
2-Hexanone	10	U			10	U													
Tetrachloroethene	10	U			10	U													
1,1,2,2-Tetrachloroethane	10	U			10	U													
Toluene	10	U			10	U													
Chlorobenzene	10	U			10	U													
Ethyl Benzene	10	U			10	U													
Styrene	10	U			10	U													
Xylene (-ortho)	10	U			10	U													
Xylene (-para & -meta)	10	U			10	U													
1,3-Dichlorobenzene	10	U			10	U													
1,4-Dichlorobenzene	10	U			10	U													
1,2-Dichlorobenzene	10	U			10	U													

Val-Validity Refer to Data Qualifiers in Table 1B

Com-Comments Refer to the Corresponding Section in the Narrative for each letter

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank

TB-Trip Blank, BG-Background Sample

D-Dilution

TABLE 1B
DATA QUALIFIERS

The definitions of the following qualifiers are prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," February 1994.

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

DATA SUMMARIES

Sample Marix: Groundwater
Analysis: Volatile and Semivolatile Compounds by CLP SOW OLM03.0
Sample Date(s): 9/24/97
Laboratory: EPA Region IX Laboratory

USEPA REGION 9 LABORATORY
CASE NARRATIVE

CASE NUMBER: **R97S51**
SAMPLE DELIVERY GROUP: **MW100924**
PROGRAM: **Superfund**
DOCUMENT CONTROL #: **ESTW-9B-451**
ANALYSIS PERFORMED: **SEMI-VOLATILES**
DATE SUBMITTED: **November 19, 1997**
SAMPLE NUMBERS:

EPA NUMBER	LAB SAMPLE ID.	EPA NUMBER	LAB SAMPLE ID.
MW10-102497	AB15952	MW13-102497	AB15956
MW110-102497	AB15953	MW14-102497	AB15957
MW11-102497	AB15954	MWB-102497	AB15958
MW12-102497	AB15955		

GENERAL COMMENTS

Seven (7) water samples from the DC Metals Site were received at the EPA Region IX laboratory on 09/24/97.

The requested analysis included CLP semi-volatiles. All samples were analyzed in accordance with the OLM03.0 CLP Statement of Work with the following dilution modifications, as specified in TDF #9711069, due to the high concentrations of both target and non-target analytes:

Sample	Dilution	Sample	Dilution
MW10-102497	1:2	MW14-102497	1:20
MW11-102497	1:1	MW110-102497	1:2
MW12-102497	1:5	MWB-102497	1:1
MW13-102497	1:5		

SAMPLE RECEIPT, AND PRESERVATION

All samples were hand-delivered to the laboratory in Richmond, CA. Samples were received at the laboratory on on the same day as they were sampled. Sample temperatures at the time of receipt at the laboratory were 25°C. This temperatures is outside the specified range of 2°C to 6°C.

QA/QC AND ANALYTICAL COMMENTS

Method Blanks

A laboratory method blank is laboratory reagent water or baked sand with all reagents, surrogates, and internal standards added and carried through the same sample preparation and analytical procedures as the field samples. The laboratory method blank is used to determine the level of contamination introduced by the laboratory during extraction and analysis.

No target analytes were detected in the method blank extracted with these samples.

Surrogates:

Surrogates are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with surrogate compounds prior to extraction. Surrogate percent recovery (%R) provides information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.

The recovery of terphenyl-d_{14} in sample MW11-102497 was 18 percent, which is below the acceptance window of 33% - 141%. However, the Statement of Work permits up to one base/neutral surrogate and one acid surrogate to be outside specification per analysis. Under these criteria this analysis is acceptable.

Matrix Spike and Spike Duplicate Analysis (QC Sample: MW12-102497)

Matrix spike sample and spike duplicate analyses provide information about the effect of the sample matrix on sample preparation and measurement. Poor percent recovery (%R) results and large relative percent difference (RPD) between duplicates may indicate poor laboratory technique, sample nonhomogeneity in soils, or matrix effects which may interfere with analysis.

All MS/MSD criteria were met.

Blank Spike

A Blank spike is laboratory reagent water or baked sand with all reagents, surrogates, internal standards and representative target compounds added and carried through the same sample preparation and analytical procedures as the field samples. The blank spike sample analyses provide information about the laboratory and method performance. Poor percent recovery (%R) results may indicate poor laboratory technique, or poor methosd performance for a paticular class of compounds.

One (1) blank spike percent recovery was outside QC specification limits in SBLKSPK02 extracted on 10/08/97.

Analyte	Percent Recovery	QC Limit
1,2,4-trichlorobenzene	38	39 - 98

Internal Standards:

Internal standards are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

All samples are spiked with internal standard compounds prior to analysis. Internal standard recoveries and retention times provides information about both the instrument performance on individual samples and the possible effects of the sample matrix on the analytical results.

The response for naphthalene-d_8 in sample MW14-102497 exceeded internal standard acceptance criteria. It was reanalyzed with similar results. This indicates a matrix interference effect. In the diluted sample a small, nearly coeluting peak was observed. It is believed that this peak merged with the naphthalene-d_8 peak at the higher concentration.

The MS and MSD, samples MW12MS-102497 and MW12MSD-102497, also exhibited a peak that closely eluted with naphthalene-d_8 and was automatically included with that peak. This required that the internal standard be manually integrated. A copy of the manually-integrated internal standard is included in the data package. This action resulted in all analytes quantitated using this internal standard being flagged as manually integrated.

The internal standard 1,4-dichlorobenzene-d4 was manually integrated on the continuing calibration performed on 11/05/97. A copy of the manually-integrated chromatogram is included in the data package. This action resulted in all analytes quantitated using this internal standard being flagged as manually integrated.

All other method criteria were met.

RESULTS SUMMARY

The results can be found on the Form I reports. On the Form I reports, the following qualifiers are used.

A	This tentatively identified compound is a suspected aldol-condensation product.
B	This analyte was detected in the associated method blank.
D	The amount detected is calculated from a diluted sample.
E	The amount detected exceeds the calibration range of the instrument.
J	The amount detected is less than CRQL and is only an estimated value.
N	The identification of this compound is based upon a mass spectral library search.
U	This compound was analyzed for, but not detected.

Example calculation: 2-methylphenol reported for sample MW12-102497 analyzed on 10/31/97.

Conc. (μg/L) $= A_{TC} * AMT_{IS} * V_{Ext} * DF * GPC / (A_{IS} * RRF * V_{Water} * V_{inj})$

$= 183586 * 20$ ng $* 1000\ \mu L * 5 * 1 / (58236 * 1.387 * 980 * 1\ \mu L)$

$= 232\ \mu$g/L

$\approx 230\ \mu$g/L

where

A_{TC} is the area of the quantitation ion for the target compound (from the quant report)

AMT_{IS} is the amount of the internal standard injected in ng (20 ng for all samples)

V_{ext} is the volume of extract prepared (in μL)

DF is the dilution factor (from Form I)

GPC is the gel premeation factor (= 1 because GPC was not used)

A_{IS} is the area of the associated internal standard (1,4-dichlorbenzene-d_4)

RRF is the relative response factor (from the Form VII for 10/31/97)

V_{Water} is the volume of water extracted in mL

V_{inj} is the volume of extract injected (1 μL for all samples and standards).

DISCLAIMER ON ROUNDING

Numerical results generated by Formaster may not match exactly with numbers generated from the same data, by other programs, or calculated manually. Formaster uses an *even/odd* rounding rule.

Any questions in reference to this data package may be addressed to Joseph R. Naughten at (510)412-2358.

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF UNVALIDATED RESULTS

Case Number: R97S51
Site: DC METALS
SDG: MW10
Date: 11/07/97

Analysis: GC/MS VOAS
Matrix: Low Level Water

Station Location Sample I.D. Date of Collection Units Analyte	MWB MWB 09/24/97 ug/L Result	Q	MW11 MW11 09/24/97 ug/L Result	Q	MW110 MW110 09/24/97 ug/L Result	Q	MW13 MW13 09/24/97 ug/L Result	Q	MW12 MW12 09/24/97 ug/L Result	Q
Chloromethane	1	U	1	U	1	U	250	U	3	U
Bromomethane	1	U	1	U	1	U	250	U	3	U
Vinyl Chloride	0.5	U	39		34		6100		1700	
Trichlorofluoromethane	1	U	1	U	1	U	250	U	3	U
Dichlorodifluoromethane	1	U	1	U	1	U	250	U	3	U
Chloroethane	1	U	1	U	26		250	U	120	
Methylene Chloride	1	U	1	U	1	U	100000		25	
Acetone	10	U	10	U	10	U	68000		280	
Carbon Disulfide	1	U	1	U	1	U	250	U	3	
1,1-Dichloroethene	1	U	3		8		250	U	420	
1,1-Dichloroethane	1	U	21		200		2800		1000	
cis-1,2-Dichloroethene	1	U	65		290		6200		36000	
trans-1,2-Dichloroethene	1	U	1	U	5		250	U	560	
Methyl-t-Butyl Ether	1	U	1	U	1	U	250	U	3	U
Chloroform	9		1	U	1	U	250	U	3	
1,2-Dichloroethane	0.5	U	0.5	U	0.5	U	590		15	
1,3-Dichloropropane	1	U	1	U	1	U	250	U	3	U
1,2,3-Trichloropropane	1	U	1	U	1	U	250	U	3	U
1,2-Dibromo-3-chloropropane	1	U	1	U	1	U	250	U	3	U
1,2-Dibromoethane	1	U	1	U	1	U	250	U	3	U
2-Butanone	9	J	10	U	10	U	2400000		25	U
1,1,1-Trichloroethane	1	U	1	U	1	U	200	J	4500	
Carbon Tetrachloride	0.5	U	0.5	U	0.5	U	130	U	1	U
Bromodichloromethane	0.2	J	1	U	1	U	250	U	3	U
1,2-Dichloropropane	0.8	J	1	U	1		250	U	5	
cis-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U	130	U	1	U
Trichloroethene	1	U	21		28		620		4200	
Dibromochloromethane	1	U	1	U	1	U	250	U	3	U
1,1,2-Trichloroethane	1	U	1	U	1	U	250	U	28	
Benzene	1	U	1	U	31		900		160	
trans-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U	1600		1	U
Bromoform	1	U	1	U	1	U	250	U	3	U
4-Methyl-2-pentanone	10	U	10	U	10	U	280000		25	U
2-Hexanone	10	U	10	U	10	U	830	J	25	U
Tetrachloroethene	1	U	1	U	13		250	U	11	
1,1,2,2-Tetrachloroethane	1	U	1	U	1	U	250	U	3	U
Toluene	1	U	1	U	1	U	28000		16000	
Chlorobenzene	1	U	1	U	2		250	U	5	
Ethyl Benzene	1	U	1	U	1	U	530		130	
Styrene	1	U	1	U	1	U	250	U	14	
Xylene (-ortho)	1	U	1	U	1	U	740		270	
Xylene (-para & -meta)	1	U	1	U	1	U	1900		560	
1,3-Dichlorobenzene	1	U	1	U	1	U	250	U	3	U
1,4-Dichlorobenzene	1	U	1	U	1	U	250	U	3	U
1,2-Dichlorobenzene	1	U	1	U	1	U	250	U	3	U

Q-Laboratory Data Qualifiers

Refer to EPA Region 9 Laboratory Qualifier Definitions

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF UNVALIDATED RESULTS

Case Number: R97S51
Site: DC METALS
SDG: MW10
Date: 11/07/97

Analysis: GC/MS VOAS
Matrix: Low Level Water

Station Location Sample I.D. Date of Collection Units Analyte	MW10 MW10 09/24/97 ug/L Result	Q	MW14 MW14 09/24/97 ug/L Result	Q	Method Blank VBLK09 N/A ug/L Result	Q	Method Blank VBLK011 N/A ug/L Result	Q	Method Blank VBLK012 N/A ug/L Result	Q
Chloromethane	1	U	50	U	1	U	1	U	1	U
Bromomethane	1	U	50	U	1	U	1	U	1	U
Vinyl Chloride	34		500		0.5	U	0.5	U	0.5	U
Trichlorofluoromethane	1	U	50	U	1	U	1	U	1	U
Dichlorodifluoromethane	1	U	50	U	1	U	1	U	1	U
Chloroethane	28		160		1	U	1	U	1	U
Methylene Chloride	1	U	88000		1	U	1	U	1	U
Acetone	10	U	19000		10	U	10	U	10	U
Carbon Disulfide	1	U	50	U	1	U	1	U	1	U
1,1-Dichloroethene	8		290		1	U	1	U	1	U
1,1-Dichloroethane	210		13000		1	U	1	U	1	U
cis-1,2-Dichloroethene	300		54000		1	U	1	U	1	U
trans-1,2-Dichloroethene	5		170		1	U	1	U	1	U
Methyl-t-Butyl Ether	1	U	50	U	1	U	1	U	1	U
Chloroform	1	U	140		1	U	1	U	1	U
1,2-Dichloroethane	0.5	U	580		0.5	U	0.5	U	0.5	U
1,3-Dichloropropane	1	U	50	U	1	U	1	U	1	U
1,2,3-Trichloropropane	1	U	21	J	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	1	U	59		1	U	1	U	1	U
1,2-Dibromoethane	1	U	50	U	1	U	1	U	1	U
2-Butanone	10	U	22000		10	U	10	U	10	U
1,1,1-Trichloroethane	1	U	11000		1	U	1	U	1	U
Carbon Tetrachloride	0.5	U	50	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	1	U	50	U	1	U	1	U	1	U
1,2-Dichloropropane	1		1600		1	U	1	U	1	U
cis-1,3-Dichloropropene	0.5	U	25	U	0.5	U	0.5	U	0.5	U
Trichloroethene	27		200000		1	U	1	U	1	U
Dibromochloromethane	1	U	50	U	1	U	1	U	1	U
1,1,2-Trichloroethane	1	U	280		1	U	1	U	1	U
Benzene	31		930		1	U	1	U	1	U
trans-1,3-Dichloropropene	0.5	U	3600		0.5	U	0.5	U	0.5	U
Bromoform	1	U	50	U	1	U	1	U	1	U
4-Methyl-2-pentanone	10	U	70000		10	U	10	U	10	U
2-Hexanone	10	U	500	U	10	U	10	U	10	U
Tetrachloroethene	15		3300		1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	1	U	50	U	1	U	1	U	1	U
Toluene	1	U	35000		1	U	1	U	1	U
Chlorobenzene	3		50	U	1	U	1	U	1	U
Ethyl Benzene	1	U	1100		1	U	1	U	1	U
Styrene	1	U	50	U	1	U	1	U	1	U
Xylene (-ortho)	1	U	1000		1	U	1	U	1	U
Xylene (-para & -meta)	1	U	2300		1	U	1	U	1	U
1,3-Dichlorobenzene	1	U	50	U	1	U	1	U	1	U
1,4-Dichlorobenzene	0.7	J	50	U	1	U	1	U	1	U
1,2-Dichlorobenzene	0.8	J	50	U	1	U	1	U	1	U

Q-Laboratory Data Qualifiers

Refer to EPA Region 9 Laboratory Qualifier Definitions

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF UNVALIDATED RESULTS

Case Number: R97S51
Site: DC METALS
SDG: MW10
Date: 11/07/97

Analysis: GC/MS VOAS
Matrix: Low Level Water

Station Location Sample I.D. Date of Collection Units Analyte	Method Blank VBLK013 N/A ug/L Result	Q	CRQL ug/L Result	Q
Chloromethane	1	U	1	U
Bromomethane	1	U	1	U
Vinyl Chloride	0.5	U	0.5	U
Trichlorofluoromethane	1	U	1	U
Dichlorodifluoromethane	1	U	1	U
Chloroethane	1	U	1	U
Methylene Chloride	1	U	1	U
Acetone	10	U	10	U
Carbon Disulfide	1	U	1	U
1,1-Dichloroethene	1	U	1	U
1,1-Dichloroethane	1	U	1	U
cis-1,2-Dichloroethene	1	U	1	U
trans-1,2-Dichloroethene	1	U	1	U
Methyl-t-Butyl Ether	1	U	1	U
Chloroform	1	U	1	U
1,2-Dichloroethane	0.5	U	0.5	U
1,3-Dichloropropane	1	U	1	U
1,2,3-Trichloropropane	1	U	1	U
1,2-Dibromo-3-chloropropane	1	U	1	U
1,2-Dibromoethane	1	U	1	U
2-Butanone	10	U	10	U
1,1,1-Trichloroethane	1	U	1	U
Carbon Tetrachloride	0.5	U	0.5	U
Bromodichloromethane	1	U	1	U
1,2-Dichloropropane	1	U	1	U
cis-1,3-Dichloropropene	0.5	U	0.5	U
Trichloroethene	1	U	1	U
Dibromochloromethane	1	U	1	U
1,1,2-Trichloroethane	1	U	1	U
Benzene	1	U	1	U
trans-1,3-Dichloropropene	0.5	U	0.5	U
Bromoform	1	U	1	U
4-Methyl-2-pentanone	10	U	10	U
2-Hexanone	10	U	10	U
Tetrachloroethene	1	U	1	U
1,1,2,2-Tetrachloroethane	1	U	1	U
Toluene	1	U	1	U
Chlorobenzene	1	U	1	U
Ethyl Benzene	1	U	1	U
Styrene	1	U	1	U
Xylene (-ortho)	1	U	1	U
Xylene (-para & -meta)	1	U	1	U
1,3-Dichlorobenzene	1	U	1	U
1,4-Dichlorobenzene	1	U	1	U
1,2-Dichlorobenzene	1	U	1	U

Q-Laboratory Data Qualifiers CRQL - Contract Required Quantitation Limits
Refer to EPA Region 9 Laboratory Qualifier Definitions

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF UNVALIDATED RESULTS

Case Number: R97S51
Site: DC METALS
SDG: MW100924
Date: 11/18/97

Analysis: BNA
Matrix: Water

Station Location	MW10-09297		MW11-092487		MW12-092497		MW13-092497		MW14-092497	
Sample I.D.	MW10-09297		MW11-092487		MW12-092497		MW13-092497		MW14-092497	
Date of Collection	09/24/97		09/24/97		09/24/97		09/24/97		09/24/97	
Sample Vol.	940		1000		980		1000		940	
Dilution Factor	2		1		5		5		20	
Units	ug/L		ug/L		ug/L		ug/L		ug/L	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	21	U	10	U	45	J	59		3000	
bis(2-Chloroethyl)ether	21	U	10	U	51	U	50	U	210	U
2-Chlorophenol	21	U	10	U	51	U	50	U	210	U
1,3-Dichlorobenzene	21	U	10	U	51	U	50	U	210	U
1,4-Dichlorobenzene	21	U	10	U	51	U	50	U	210	U
Benzyl alcohol	21	U	10	U	15	J	50	U	680	
1,2-Dichlorobenzene	21	U	10	U	51	U	10	J	210	U
2-Methylphenol	21	U	10	U	230		920		1600	
2,2'-oxybis(1-Chloropropane)	18	J	10	U	51	U	50	U	210	U
4-Methylphenol	21	U	10	U	190		2000		2400	
N-Nitroso-di-n-propylamine	21	U	10	U	51	U	50	U	210	U
Hexachloroethane	21	U	10	U	51	U	50	U	210	U
Nitrobenzene	21	U	10	U	51	U	50	U	210	U
Isophorone	21	U	10	U	51	U	50	U	210	U
2-Nitrophenol	21	U	10	U	51	U	50	U	210	U
2,4-Dimethylphenol	150		10	U	59		210		68	J
Benzoic acid	21	U	10	U	890	E	3200	E	35000	E
bis(2-Chloroethoxy)methane	21	U	10	U	23	J	50	U	210	U
2,4-Dichlorophenol	21	U	10	U	51	U	50	U	210	U
1,2,4-Trichlorobenzene	21	U	10	U	51	U	50	U	210	U
Naphthalene	21	U	10	U	57		270		160	J
4-Chloroaniline	21	U	10	U	51	U	50	U	210	U
Hexachlorobutadiene	21	U	10	U	51	U	50	U	210	U
4-Chloro-3-methylphenol	21	U	10	U	37	J	50	U	210	U
2-Methylnaphthalene	21	U	10	U	59		2900		560	
Hexachlorocyclopentadiene	21	U	10	U	51	U	50	U	210	U
2,4,6-Trichlorophenol	21	U	10	U	51	U	50	U	210	U
2,4,5-Trichlorophenol	53	U	25	U	130	U	120	U	530	U
2-Chloronaphthalene	21	U	10	U	51	U	50	U	210	U
2-Nitroaniline	53	U	25	U	130	U	120	U	530	U
Dimethylphthalate	21	U	10	U	51	U	50	U	210	U
Acenaphthylene	21	U	10	U	51	U	50	U	210	U
2,6-Dinitrotoluene	21	U	10	U	51	U	50	U	210	U
3-Nitroaniline	53	U	25	U	130	U	120	U	530	U
Acenaphthene	21	U	10	U	51	U	50	U	210	U
2,4-Dinitrophenol	53	U	25	U	130	U	120	U	530	U
4-Nitrophenol	53	U	25	U	130	U	120	U	530	U
Dibenzofuranl	21	U	10	U	51	U	50	U	210	U
2,4-Dinitrotoluene	21	U	10	U	51	U	50	U	210	U
Diethylphthalate	21	U	10	U	51	U	50	U	210	U
4-Chlorophenyl-phenylether	21	U	10	U	51	U	50	U	210	U
Fluorene	21	U	10	U	51	U	50	U	210	U
4-Nitroaniline	53	U	25	U	130	U	120	U	530	U
4,6-Dinitro-2-methylphenol	53	U	25	U	130	U	120	U	530	U
N-Nitrosodiphenylamine (1)	21	U	10	U	51	U	50	U	210	U
4-Bromophenyl-phenylether	21	U	10	U	51	U	50	U	210	U

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF UNVALIDATED RESULTS

Case Number: R97S51
Site: DC METALS
SDG: MW100924
Date: 11/18/97

Analysis: BNA
Matrix: Water

Station Location	MW10-09297		MW11-092487		MW12-092497		MW13-092497		MW14-092497	
Sample I.D.	MW10-09297		MW11-092487		MW12-092497		MW13-092497		MW14-092497	
Date of Collection	09/24/97		09/24/97		09/24/97		09/24/97		09/24/97	
Sample Vol	940		1000		980		1000		940	
Dilution Factor	2		1		5		5		20	
Units	ug/L		ug/L		ug/L		ug/L		ug/L	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Hexachlorobenzene	21	U	10	U	51	U	50	U	210	U
Pentachlorophenol	53	U	25	U	130	U	110	J	530	U
Phenanthrene	21	U	10	U	51	U	50	U	210	U
Anthracene	21	U	10	U	51	U	50	U	210	U
Carbazole	21	U	10	U	51	U	14	J	210	U
Di-n-butylphthalate	21	U	10	U	51	U	50	U	210	U
Fluoranthene	21	U	10	U	51	U	50	U	210	U
Pyrene	21	U	10	U	51	U	50	U	210	U
Butylbenzylphthalate	21	U	10	U	51	U	50	U	210	U
3,3'-Dichlorobenzidine	21	U	10	U	51	U	50	U	210	U
Benzo(a)anthracene	21	U	10	U	51	U	50	U	210	U
Chrysene	21	U	10	U	51	U	50	U	210	U
bis(2-Ethylhexyl)phthalate	21	U	10	U	51	U	50	U	210	U
Di-n-octylphthalate	21	U	10	U	51	U	50	U	210	U
Benzo(b)fluoranthene	21	U	10	U	51	U	50	U	210	U
Benzo(k)fluoranthene	21	U	10	U	51	U	50	U	210	U
Benzo(a)pyrene	21	U	10	U	51	U	50	U	210	U
Indeno(1,2,3-cd)pyrene	21	U	10	U	51	U	50	U	210	U
Dibenz(a,h)anthracene	21	U	10	U	51	U	50	U	210	U
Benzo(g,h,i)perylene	21	U	10	U	51	U	50	U	210	U

Q-Laboratory Data Qualifiers

Refer to EPA Region 9 Laboratory Qualifier Definitions

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF UNVALIDATED RESULTS

Case Number: R97S51
Site: DC METALS
SDG: MW100924
Date: 11/18/97

Analysis: BNA
Matrix: Water

Station Location	MW110-092497		MWB-092497		Method Blank					
Sample I.D.	MW110-092497		MWB-092497		SBLK		CRQL			
Date of Collection	09/24/97		09/24/97		N/A					
Sample Vol.	920		1060		1000		1000			
Dilution Factor	2		1		1		1			
Units	ug/L		ug/L		ug/L		ug/L			
Analyte	Result	Q	Result	Q	Result	Q	Result			
Phenol	22	U	9	U	10	U	10			
bis(2-Chloroethyl)ether	22	U	9	U	10	U	10			
2-Chlorophenol	22	U	9	U	10	U	10			
1,3-Dichlorobenzene	22	U	9	U	10	U	10			
1,4-Dichlorobenzene	22	U	9	U	10	U	10			
Benzyl alcohol	22	U	9	U	10	U	10			
1,2-Dichlorobenzene	22	U	9	U	10	U	10			
2-Methylphenol	22	U	9	U	10	U	10			
2,2'-oxybis(1-Chloropropane)	11	J	9	U	10	U	10			
4-Methylphenol	22	U	9	U	10	U	10			
N-Nitroso-di-n-propylamine	22	U	9	U	10	U	10			
Hexachloroethane	22	U	9	U	10	U	10			
Nitrobenzene	22	U	9	U	10	U	10			
Isophorone	22	U	9	U	10	U	10			
2-Nitrophenol	22	U	9	U	10	U	10			
2,4-Dimethylphenol	110		9	U	10	U	10			
Benzoic acid	22	U	9	U	10	U	10			
bis(2-Chloroethoxy)methane	22	U	9	U	10	U	10			
2,4-Dichlorophenol	22	U	9	U	10	U	10			
1,2,4-Trichlorobenzene	22	U	9	U	10	U	10			
Naphthalene	22	U	9	U	10	U	10			
4-Chloroaniline	22	U	9	U	10	U	10			
Hexachlorobutadiene	22	U	9	U	10	U	10			
4-Chloro-3-methylphenol	22	U	9	U	10	U	10			
2-Methylnaphthalene	22	U	9	U	10	U	10			
Hexachlorocyclopentadiene	22	U	9	U	10	U	10			
2,4,6-Trichlorophenol	22	U	9	U	10	U	10			
2,4,5-Trichlorophenol	54	U	24	U	25	U	25			
2-Chloronaphthalene	22	U	9	U	10	U	10			
2-Nitroaniline	54	U	24	U	25	U	25			
Dimethylphthalate	22	U	9	U	10	U	10			
Acenaphthylene	22	U	9	U	10	U	10			
2,6-Dinitrotoluene	22	U	9	U	10	U	10			
3-Nitroaniline	54	U	24	U	25	U	25			
Acenaphthene	22	U	9	U	10	U	10			
2,4-Dinitrophenol	54	U	24	U	25	U	25			
4-Nitrophenol	54	U	24	U	25	U	25			
Dibenzofuranl	22	U	9	U	10	U	10			
2,4-Dinitrotoluene	22	U	9	U	10	U	10			
Diethylphthalate	22	U	9	U	10	U	10			
4-Chlorophenyl-phenylether	22	U	9	U	10	U	10			
Fluorene	22	U	9	U	10	U	10			
4-Nitroaniline	54	U	24	U	25	U	25			
4,6-Dinitro-2-methylphenol	54	U	24	U	25	U	25			
N-Nitrosodiphenylamine (1)	22	U	9	U	10	U	10			
4-Bromophenyl-phenylether	22	U	9	U	10	U	10			

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF UNVALIDATED RESULTS

Analysis: BNA
Matrix: Water

Case Number: R97S51
Site: DC METALS
SDG: MW100924
Date: 11/18/97

Station Location	MW110-092497		MWB-092497		Method Blank					
Sample I.D.	MW110-092497		MWB-092497		SBLK		CRQL			
Date of Collection	09/24/97		09/24/97		N/A					
Sample Vol	920		1060		1000		1000			
Dilution Factor	2		1		1		1			
Units	ug/L		ug/L		ug/L		ug/L			
Analyte	Result	Q	Result	Q	Result	Q	Result			
Hexachlorobenzene	22	U	9	U	10	U	10			
Pentachlorophenol	54	U	24	U	25	U	25			
Phenanthrene	22	U	9	U	10	U	10			
Anthracene	22	U	9	U	10	U	10			
Carbazole	22	U	9	U	10	U	10			
Di-n-butylphthalate	22	U	9	J	10	J	10			
Fluoranthene	22	U	9	U	10	U	10			
Pyrene	22	U	9	U	10	U	10			
Butylbenzylphthalate	22	U	9	U	10	U	10			
3,3'-Dichlorobenzidine	22	U	9	U	10	U	10			
Benzo(a)anthracene	22	U	9	U	10	U	10			
Chrysene	22	U	9	U	10	U	10			
bis(2-Ethylhexyl)phthalate	22	U	9	U	10	U	10			
Di-n-octylphthalate	22	U	9	U	10	U	10			
Benzo(b)fluoranthene	22	U	9	U	10	U	10			
Benzo(k)fluoranthene	22	U	9	U	10	U	10			
Benzo(a)pyrene	22	U	9	U	10	U	10			
Indeno(1,2,3-cd)pyrene	22	U	9	U	10	U	10			
Dibenz(a,h)anthracene	22	U	9	U	10	U	10			
Benzo(g,h,i)perylene	22	U	9	U	10	U	10			

Q-Laboratory Data Qualifiers

Refer to EPA Region 9 Laboratory Qualifier Definitions

DATA SUMMARIES

Sample Marix:	Groundwater
Analysis:	Volatile Organic Compounds by 8260B; Semivolatile Organic Compounds by 8270B; Metals by 6010A/7470
Sample Date(s):	12/17/98
Laboratory:	Curtis and Tompkins, Ltd.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX
Laboratory: Curtis and Tompkins, Ltd.	Lab Project Number: 137223
Sampling Dates: 12/17/98	Sample Matrix: water
Analytical Method: 8260B	Data Reviewer: Edward Long

REVIEW AND APPROVAL:

Data Reviewer: Edward J. Long Date: 2/1/99

Technical QA Reviewer: [signature] Date: 2/2/99

Project Manager: CMcleod Date: 2/24/99

SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	MW11 - 121798	137223-001
2	GW12 - 121798	137223-002
3	MW13 - 121798	137223-003
4	MW14 - 121798	137223-004
5	MW130 - 121798	137223-005
6	MWB - 121798	137223-006

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

DATA PACKAGE COMPLETENESS CHECKLIST:

Checklist Code:

- X — Included: no problems
- * — Included: problems noted in review
- O — Not Included and/or Not Available
- NR — Not Required
- RS — Provided As Re-submission

Case Narrative:

- X — Case Narrative present

Quality Control Summary Package:

- X — Data Summary sheets
- X — Matrix Spike/Spike Duplicate Recoveries
- X — Laboratory Control Sample Recoveries
- X — Method Blank Summaries
- X — GC/MS Tuning and Mass Calibration
- X — Initial Calibration Data
- X — Continuing Calibration Data
- X — Surrogate Compound Recovery Summary
- X — Internal Standard Area Summary

Sample and Blank Data Package Section

- X — Reconstructed Ion Current (RIC) Chromatogram
- X — Quantitation Reports
- X — Raw and Enhanced Mass Spectra
- X — Reference Mass Spectra for Target Compounds
- NR — Mass Spectral Library Search for TICs

Raw QC Data Package Section

- X — DFTPP and/or BFB mass spectra and mass listings
- X — RIC Chromatogram for Standards and MS/MSD Samples
- X — Quantitation Reports for Standards and MS/MSD
- O — List of Instrument Detection Limits
- X — Chain-of-Custody Records
- X — Sample Preparation and Analysis Run Logs

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

DATA VALIDATION SUMMARY

The data were reviewed following procedures and limits specified in the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004, OSWER Directive 9360.4-01, dated April 1990).

Indicate with a YES or NO whether each item is acceptable:

1	Holding Times	Yes
2	GC/MS Tuning Criteria	Yes
3	Initial Calibrations	Yes
4	Continuing Calibrations	Yes
5	Laboratory Control Sample	Yes
6	Matrix Spike/Matrix Spike Duplicate	Yes
7	Blanks and Background Samples	Yes
8	Surrogate Compounds	Yes
9	Internal Standards	Yes
10	Duplicate Analyses	Yes
11	Analyte Identification	Yes
12	Analyte Quantitation	Yes
13	Overall Assessment of Data	Yes
14	Usability of Data	Yes

Comments: None

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

1. HOLDING TIMES

_____ Acceptable
__X__ Acceptable with qualification
_____ Unacceptable

Samples were extracted and analyzed within required holding times except as noted under Comments. In addition, no problems were identified with regard to sample preservation or custody unless specified. For those sample fractions extracted or analyzed outside holding time requirements, the results have been qualified as estimated (J).

Water Samples:
EPA 8260B: 14 days (from collection) for analysis if preserved; 7 days if unpreserved.
EPA 8270C: 7 days (from collection) for extraction; 40 days (from extraction) for analysis.
EPA 8290: 30 days (from collection) for extraction; 45 days (from extraction) for analysis.
Soil or Other Matrices:
EPA 8260B: 14 days (from collection) for analysis.
EPA 8270C:14 days (from collection) for extraction;40 days (from extraction) for analysis.
EPA 8290: 30 days (from collection) for extraction; 45 days (from extraction) for analysis.

Comments: The samples were preserved with hydrochloric acid and analyzed within the 14-day holding time for preserved samples. However, the pH values of the samples were greater than 2; the method specifies that samples are to be preserved to a pH of less than or equal to 2. Therefore, all detected results in the samples are qualified as estimated (J).

2. GC/MS TUNING CRITERIA

__X__ **BFB (EPA 8260B) or DFTPP (EPA 8270C) has been run for every 12 hours of sample analysis per instrument.**

__X__ **The BFB or DFTPP ion abundance criteria indicated in EPA/540/G-90/004 have been met for each instrument.**

_____ **No ion abundance criteria are indicated for EPA 8290; however data demonstrating that the instrument has been tuned was provided.**

Comments: None

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

3. INITIAL CALIBRATIONS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Unless flagged below, a 5-point initial calibration was run. In addition, average Relative Response Factor (RRF), and percent relative Standard Deviation (%RSD) values were within control limits (average RRF >= 0.05; %RSD <= 30). For analytes which exceeded these control limits, associated data are qualified as estimated (J). In cases where the low calibration level was not detected, the detection limit is qualified (UJ). In cases where the analyte was not detected in the calibration, all associated data are rejected (R).

Comments: None

4. CONTINUING CALIBRATIONS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Unless flagged below, continuing calibrations were performed at the beginning and at the end of any group of samples and at least every 12 hours. In addition, Relative Response Factors (RRF), and Percent Difference (%D) values were within control limits (RRF >= 0.05; %D <= 25). For analytes which exceeded these control limits, associated data are qualified as estimated (J). In cases where the low calibration level was not detected, the detection limit is qualified (UJ). In cases where the analyte was not detected in the calibration, all associated data are rejected (R).

Comments:
The %D for vinyl acetate in three continuing calibrations was low (-30%, -35%, and -62%), indicating a decrease in instrument sensitivity. Because the associated sample results were nondetected, no data were qualified.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

5. LABORATORY CONTROL SAMPLE

__X__ **Acceptable**
_____ **Acceptable with qualification**
_____ **Unacceptable**
_____ **No Laboratory Control Samples Analyzed**

Laboratory control sample recoveries are used for a qualitative indication of accuracy (bias) independent of matrix effects. Spike recovery limits of 80% to 120% are specified in EPA/540/G-90/004. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). At the discretion of the reviewer, other limits may be used only if justification can be provided.

Comments: None

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

_____ **Acceptable**
__X__ **Acceptable with qualification**
_____ **Unacceptable**
_____ **No Matrix Spike/Matrix Spike Duplicates Analyzed**

Matrix spike and matrix spike duplicate recoveries are used for a qualitative indication of accuracy (bias) due to matrix effects. The RPD between the recoveries is used for a qualitative indication of precision. Spike recovery limits of 80% to 120% are specified in EPA/540/G-90/004. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). At the discretion of the reviewer, other limits may be used only if justification can be provided.

Comments:
The % recovery for 1,1-dichloroethene was high in the MSD (123%), indicating a slight increase in instrument sensitivity. The recovery for 1,1-dichloroethene in the MS was acceptable. The detected results for 1,1-dichloroethene are qualified as estimated (J). Because these results were previously qualified as estimated due to preservation problems, no additional qualifiers were applied.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

7. BLANKS AND BACKGROUND SAMPLES

__X__ **Acceptable**
_____ **Practical Quantitation Limit Adjusted**

The following blanks were analyzed:
__X__ **Method (preparation) Blanks**
__X__ **Field Blanks**
_____ **Instrument Blanks**
_____ **Rinsate Blanks**
_____ **Background Samples**
_____ **VOA Trip Blanks**

Preparation (method) blanks were prepared for each batch of samples extracted. A preparation blank was analyzed after every continuing calibration standard, prior to sample analysis unless noted below. Any compound detected in the sample and also detected in any associated blank, must be qualified as non-detect (U) when the sample concentration is less than 5x the blank concentration.

Comments:
The method blank results were nondetected. Chloroform was detected in the field blank at 3.8 ug/L. Although the PQL is 1.0 ug/L, this low-level detection is not indicative of a significant contamination problem. The results for chloroform in the associated samples were nondetected. Therefore, no data were qualified.

8. SURROGATE COMPOUNDS

__X__ **Acceptable**
_____ **Acceptable with qualification**
_____ **Unacceptable**
_____ **No surrogates analyzed; not required for EPA 8290**

Surrogate compound recoveries for samples analyzed within a sample group must be within the limits specified in the method. If the surrogate recovery is between 10% and the lower limit, the associated detected results are qualified as estimated (J) and the nondetected results are qualified as estimated (UJ). If the surrogate recovery is <10%, the associated detected results are qualified as estimated (J) and the nondetected results are rejected (R). If the surrogate recovery is above the upper limit, the associated detected results are qualified as estimated (J). Surrogate recoveries which exceeded these limits are noted below and the associated results are qualified on the attached sample report forms.

Comments: None

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

9. INTERNAL STANDARDS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Internal Standard area counts for samples analyzed within a sample group must be within the range of 50% to 200% of the internal standard area for the continuing calibration. If the internal standard area is between 10% and 50% of this value, the associated detected results are qualified as estimated (J) and the nondetected results are qualified as estimated (UJ). If the internal standard area is <10% of the calibration area, both the detected and nondetected results are rejected (R). If the internal standard area is >200% of the calibration area, the associated detected results are qualified as estimated (J). Internal standards which exceeded these limits are noted below and the associated results are qualified on the attached sample report forms.

Comments: None

10. DUPLICATE ANALYSES

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Duplicates Analyzed

Type of duplicates analyzed:
__X__ Field Duplicates
_____ Laboratory Duplicates

Calculate the relative Percent Difference (RPD) between the members of duplicate pairs using the equation indicated below. Qualify the results as estimated (J) for any analyte whose RPD exceeds that specified in the Sampling and Analysis Plan.

$$RPD = \frac{2(Value\ 1 - Value\ 2)}{Value\ 1 + Value\ 2} \times 100\%$$

Comments: None

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

11. ANALYTE IDENTIFICATION

Evaluate the ion profiles for the sample analytes and compare them to the library ion profiles provided by the laboratory. Note any identifications which are not sufficiently supported by comparison to known ion profiles.

Comments:
Analyte identification is acceptable.

12. ANALYTE QUANTITATION

Confirm that analyte quantitation was performed correctly using the following formulas:

EPA 8260B, water samples:

$$\text{ug/L} = \frac{\text{(analyte area)(amount of internal standard, ng)}}{\text{(internal standard area)(RF)(volume of water purged, mL)}}$$

EPA 8260B, soil samples:

$$\text{ug/kg} = \frac{\text{(analyte area)(amount of internal standard, ng)}}{\text{(internal standard area)(RF)(weight of soil extracted, g)(fraction solids)}}$$

EPA 8270C and 8290, water samples:

$$\text{ug/L} = \frac{\text{(analyte area)(amount of internal standard, ng)(total volume of extract, uL)}}{\text{(internal standard area)(RF)(volume of sample extracted, mL)(injection volume, uL)}}$$

EPA 8270C and 8290, soil samples:

$$\text{ug/kg} = \frac{\text{(analyte area)(amount of internal standard, ng)(total volume of extract, uL)}}{\text{(internal standard area)(RF)(weight of sample extracted, g)(fraction solids)(injection volume, uL)}}$$

Comments:
Analyte quantitation is acceptable.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

13. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the overall data usability for the specified level.

_____ **Acceptable**
__X__ **Acceptable with Qualification**
_____ **Rejected**

Accepted data meet the minimum requirements for the following EPA data category:
_____ **ERS Screening**
_____ **Non-definitive with 10 % Conformation by Definitive Methodology**
_____ **Definitive, Comprehensive Statistical Error Determination was performed.**
__X__ **Definitive, Comprehensive Statistical Error Determination was not performed.**

Any qualifications to individual sample analysis results are detailed in the appropriate section above or appear under the comments section below. In cases where several QC criteria are out of specification, it may be appropriate to further qualify the data usability. The data reviewer must use professional judgment and express concerns and comments on the data validity for each specific data package.

Comments: Because the preservation problems did not suggest a probability that false negatives or false positives could be reported, the data are acceptable with the detected results qualified as estimated.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	**Location: Oakland, CA**
Project TDD Number: 09-9611-0016	**PAN: 09-0125-DCRS-XX**

14. USABILITY OF DATA

A. These data are considered usable for the following the data use objectives stated in the DC Metals Site Quality Assurance Sampling Plan (QASP).

The following data use objectives were indicated in the QASP:
1. To establish the initial and continuing groundwater quality, and to determine whether the treatment system is improving the groundwater quality.

2. To determine when clean-up goals have been met.

Detected results were qualified as estimated due to problems in sample preservation. Because there is a low probability that false negatives or false positives could be reported, the data are usable for the purposes indicated above.

B. These data meet quality objectives stated in the QASP.
As indicated in Section 3.0 of the QASP, the sample analyses used to document monitoring well groundwater quality will require fully validatable data packages and data in the "definitive" category. The data in this package meet these requirements.

Attached are copies of all data summary sheets, with data qualifiers indicated, and a copy of the chain of custody for the samples.

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 9
75 Hawthorne Street
San Francisco, California 94105

CHAIN OF CUSTODY RECORD

137223

PROJ. NO.	PROJECT NAME
0125DCTA	DC Metals

SAMPLERS: (Signature)
C. McLeod

STA. NO	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	8240/8260	8270	CAM 17 by 6010	MS/MSD	REMARKS
1	12/17/98	1015		✓	MW11-121798	3x40ml	✓				
		"		✓	"	2x1L		✓			
		"		✓	"	1x1L			✓		
2		0915		✓	GW MW12-121798	6x40ml	✓			✓	Probable High Concentration
		"		✓	"	3x1L		✓		✓	
		"		✓	"	2x1L			✓	✓	
3		1350		✓	NW MW13-121798	3x40ml	✓				Known High Concentration
		"		✓	"	2x1L		✓			
		"		✓	"	1x1L			✓		
4		1040		✓	MW14-121798	3x40ml	✓				Known High Concentration
		"		✓	"	2x1L		✓			
		"		✓	"	1x1L			✓		
5		1400		✓	MW130-121798	3x40ml	✓				Known High Concentration
		"		✓	"	2x1L		✓			
		"		✓	"	1x1L			✓		

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
C McLeod	12/18/98 1246	12/18/98 12:46			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 9
75 Hawthorne Street
San Francisco, California 94105

CHAIN OF CUSTODY RECORD

137223

PROJ. NO.	PROJECT NAME
0125 DCTA	DC Metals

SAMPLERS: (Signature)
C. McLeod Lisa Sutherland

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	8240/8260	8270	CAM 17 by 6010				REMARKS
	12/17/98	1445		✓	MWB-121798	3x40ml	✓						
	"	"		✓	"	1 x 1L		✓					
	"	"		✓	"	1 x 1L			✓				

Standard t-a-t (15 days)
Data validation package
(30 days)

fax results to:
Cindy McLeod
(415) 981 0801

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
CMcLeod	12/18/98 1246	12/18/98 1246			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
				Ecology & Environment	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

Volatile Organics by GC/MS

Client:	Ecology & Environment	Analysis Method:	EPA 8260
Project#:	0125DCTAXX	Prep Method:	EPA 5030
Location:	DC Metals		
Field ID:	MW11-121798	Sampled:	12/17/98
Lab ID:	137223-001	Received:	12/18/98
Matrix:	Water	Extracted:	12/29/98
Batch#:	45485	Analyzed:	12/29/98
Units:	ug/L		
Diln Fac:	1		

Analyte	Result		Reporting Limit
Freon 12	ND		1.0
Chloromethane	ND		1.0
Vinyl Chloride	23	J	0.5
Bromomethane	ND		1.0
Chloroethane	ND		1.0
Trichlorofluoromethane	ND		1.0
Acetone	ND		10
Freon 113	ND		5.0
1,1-Dichloroethene	3.8	J	1.0
Methylene Chloride	ND		10
Carbon Disulfide	ND		1.0
MTBE	ND		1.0
trans-1,2-Dichloroethene	0.6 J	J	1.0
Vinyl Acetate	ND		50
1,1-Dichloroethane	34	J	1.0
2-Butanone	ND		10
cis-1,2-Dichloroethene	58	J	5.0
2,2-Dichloropropane	ND		5.0
Chloroform	ND		1.0
Bromochloromethane	ND		1.0
1,1,1-Trichloroethane	ND		1.0
1,1-Dichloropropene	ND		5.0
Carbon Tetrachloride	ND		0.5
1,2-Dichloroethane	ND		0.5
Benzene	1.0	J	1.0
Trichloroethene	21	J	1.0
1,2-Dichloropropane	ND		1.0
Bromodichloromethane	ND		1.0
Dibromomethane	ND		5.0
4-Methyl-2-Pentanone	ND		10
cis-1,3-Dichloropropene	ND		0.5
Toluene	ND		1.0
trans-1,3-Dichloropropene	ND		0.5
1,1,2-Trichloroethane	ND		1.0
2-Hexanone	ND		10
1,3-Dichloropropane	ND		1.0
Tetrachloroethene	ND		1.0
Dibromochloromethane	ND		5.0

1/21/99

Volatile Organics by GC/MS

Field ID:	MW11-121798	Sampled:	12/17/98
Lab ID:	137223-001	Received:	12/18/98
Matrix:	Water	Extracted:	12/29/98
Batch#:	45485	Analyzed:	12/29/98
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
1,2-Dibromoethane	ND	1.0
Chlorobenzene	ND	1.0
1,1,1,2-Tetrachloroethane	ND	1.0
Ethylbenzene	ND	1.0
m,p-Xylenes	ND	1.0
o-Xylene	ND	1.0
Styrene	ND	1.0
Bromoform	ND	1.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	1.0
1,2,3-Trichloropropane	ND	1.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	1.0
1,2-Dibromo-3-Chloropropane	ND	1.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%Recovery	Recovery Limits
Dibromofluoromethane	103	76-128
1,2-Dichloroethane-d4	110	85-121
Toluene-d8	104	92-110
Bromofluorobenzene	101	84-115

J: Estimated Value

Volatile Organics by GC/MS

Client:	Ecology & Environment	Analysis Method:	EPA 8260
Project#:	0125DCTAXX	Prep Method:	EPA 5030
Location:	DC Metals		

Field ID:	GW12-121798	Sampled:	12/17/98
Lab ID:	137223-002	Received:	12/18/98
Matrix:	Water	Extracted:	12/31/98
Batch#:	45539	Analyzed:	12/31/98
Units:	ug/L		
Diln Fac:	250		

Analyte	Result		Reporting Limit
Freon 12	ND		250
Chloromethane	ND		250
Vinyl Chloride	1500	J	130
Bromomethane	ND		250
Chloroethane	ND		250
Trichlorofluoromethane	ND		250
Acetone	ND		2500
Freon 113	ND		1300
1,1-Dichloroethene	430	J	250
Methylene Chloride	ND		2500
Carbon Disulfide	ND		250
MTBE	ND		250
trans-1,2-Dichloroethene	270	J	250
Vinyl Acetate	ND		13000
1,1-Dichloroethane	1100	J	250
2-Butanone	ND		2500
cis-1,2-Dichloroethene	41000	J	1300
2,2-Dichloropropane	ND		1300
Chloroform	ND		250
Bromochloromethane	ND		250
1,1,1-Trichloroethane	2600	J	250
1,1-Dichloropropene	ND		1300
Carbon Tetrachloride	ND		130
1,2-Dichloroethane	ND		130
Benzene	ND		250
Trichloroethene	150	J	250
1,2-Dichloropropane	ND		250
Bromodichloromethane	ND		250
Dibromomethane	ND		1300
4-Methyl-2-Pentanone	ND		2500
cis-1,3-Dichloropropene	ND		130
Toluene	12000	J	250
trans-1,3-Dichloropropene	ND		130
1,1,2-Trichloroethane	ND		250
2-Hexanone	ND		2500
1,3-Dichloropropane	ND		250
Tetrachloroethene	ND		250
Dibromochloromethane	ND		1300

1/11/99

Volatile Organics by GC/MS

Field ID:	GW12-121798	Sampled:	12/17/98
Lab ID:	137223-002	Received:	12/18/98
Matrix:	Water	Extracted:	12/31/98
Batch#:	45539	Analyzed:	12/31/98
Units:	ug/L		
Dilu Fac:	250		

Analyte	Result	Reporting Limit
1,2-Dibromoethane	ND	250
Chlorobenzene	ND	250
1,1,1,2-Tetrachloroethane	ND	250
Ethylbenzene	ND	250
m,p-Xylenes	320 J	250
o-Xylene	150 J	250
Styrene	ND	250
Bromoform	ND	250
Isopropylbenzene	ND	1300
1,1,2,2-Tetrachloroethane	ND	250
1,2,3-Trichloropropane	ND	250
Propylbenzene	ND	1300
Bromobenzene	ND	1300
1,3,5-Trimethylbenzene	ND	1300
2-Chlorotoluene	ND	1300
4-Chlorotoluene	ND	1300
tert-Butylbenzene	ND	1300
1,2,4-Trimethylbenzene	ND	1300
sec-Butylbenzene	ND	1300
para-Isopropyl Toluene	ND	1300
1,3-Dichlorobenzene	ND	250
1,4-Dichlorobenzene	ND	250
n-Butylbenzene	ND	1300
1,2-Dichlorobenzene	ND	250
1,2-Dibromo-3-Chloropropane	ND	250
1,2,4-Trichlorobenzene	ND	1300
Hexachlorobutadiene	ND	1300
Naphthalene	ND	1300
1,2,3-Trichlorobenzene	ND	1300

Surrogate	%Recovery	Recovery Limits
Dibromofluoromethane	106	76-128
1,2-Dichloroethane-d4	113	85-121
Toluene-d8	102	92-110
Bromofluorobenzene	100	84-115

J: Estimated Value

1/21/99

Volatile Organics by GC/MS

Client:	Ecology & Environment	Analysis Method:	EPA 8260
Project#:	0125DCTAXX	Prep Method:	EPA 5030
Location:	DC Metals		
Field ID:	MW13-121798	Sampled:	12/17/98
Lab ID:	137223-003	Received:	12/18/98
Matrix:	Water	Extracted:	12/31/98
Batch#:	45539	Analyzed:	12/31/98
Units:	ug/L		
Diln Fac:	3333		

Analyte	Result		Reporting Limit
Freon 12	ND		3300
Chloromethane	ND		3300
Vinyl Chloride	19000	J	1700
Bromomethane	ND		3300
Chloroethane	ND		3300
Trichlorofluoromethane	ND		3300
Acetone	36000	J	33000
Freon 113	ND		17000
1,1-Dichloroethene	ND		3300
Methylene Chloride	ND		33000
Carbon Disulfide	ND		3300
MTBE	ND		3300
trans-1,2-Dichloroethene	ND		3300
Vinyl Acetate	ND		170000
1,1-Dichloroethane	3700	J	3300
2-Butanone	470000	J	33000
cis-1,2-Dichloroethene	ND		17000
2,2-Dichloropropane	ND		17000
Chloroform	ND		3300
Bromochloromethane	ND		3300
1,1,1-Trichloroethane	ND		3300
1,1-Dichloropropene	ND		17000
Carbon Tetrachloride	ND		1700
1,2-Dichloroethane	ND		1700
Benzene	ND		3300
Trichloroethene	ND		3300
1,2-Dichloropropane	ND		3300
Bromodichloromethane	ND		3300
Dibromomethane	ND		17000
4-Methyl-2-Pentanone	100000	J	33000
cis-1,3-Dichloropropene	ND		1700
Toluene	39000	J	3300
trans-1,3-Dichloropropene	ND		1700
1,1,2-Trichloroethane	ND		3300
2-Hexanone	ND		33000
1,3-Dichloropropane	ND		3300
Tetrachloroethene	ND		3300
Dibromochloromethane	ND		17000

1/21/99

Volatile Organics by GC/MS

Field ID:	MW13-121798	Sampled:	12/17/98
Lab ID:	137223-003	Received:	12/18/98
Matrix:	Water	Extracted:	12/31/98
Batch#:	45539	Analyzed:	12/31/98
Units:	ug/L		
Diln Fac:	3333		

Analyte	Result	Reporting Limit
1,2-Dibromoethane	ND	3300
Chlorobenzene	ND	3300
1,1,1,2-Tetrachloroethane	ND	3300
Ethylbenzene	ND	3300
m,p-Xylenes	2700 J	3300
o-Xylene	ND	3300
Styrene	ND	3300
Bromoform	ND	3300
Isopropylbenzene	ND	17000
1,1,2,2-Tetrachloroethane	ND	3300
1,2,3-Trichloropropane	ND	3300
Propylbenzene	ND	17000
Bromobenzene	ND	17000
1,3,5-Trimethylbenzene	ND	17000
2-Chlorotoluene	ND	17000
4-Chlorotoluene	ND	17000
tert-Butylbenzene	ND	17000
1,2,4-Trimethylbenzene	ND	17000
sec-Butylbenzene	ND	17000
para-Isopropyl Toluene	ND	17000
1,3-Dichlorobenzene	ND	3300
1,4-Dichlorobenzene	ND	3300
n-Butylbenzene	ND	17000
1,2-Dichlorobenzene	ND	3300
1,2-Dibromo-3-Chloropropane	ND	3300
1,2,4-Trichlorobenzene	ND	17000
Hexachlorobutadiene	ND	17000
Naphthalene	ND	17000
1,2,3-Trichlorobenzene	ND	17000

Surrogate	%Recovery	Recovery Limits
Dibromofluoromethane	108	76-128
1,2-Dichloroethane-d4	112	85-121
Toluene-d8	101	92-110
Bromofluorobenzene	100	84-115

J: Estimated Value

1/21/99

Curtis & Tompkins, Ltd.

Volatile Organics by GC/MS

Client:	Ecology & Environment	Analysis Method:	EPA 8260
Project#:	0125DCTAXX	Prep Method:	EPA 5030
Location:	DC Metals		
Field ID:	MW14-121798	Sampled:	12/17/98
Lab ID:	137223-004	Received:	12/18/98
Matrix:	Water	Extracted:	12/31/98
Batch#:	45539	Analyzed:	12/31/98
Units:	ug/L		
Diln Fac:	2000		

Analyte	Result		Reporting Limit
Freon 12	ND		2000
Chloromethane	ND		2000
Vinyl Chloride	1300	J	1000
Bromomethane	ND		2000
Chloroethane	ND		2000
Trichlorofluoromethane	ND		2000
Acetone	ND		20000
Freon 113	ND		10000
1,1-Dichloroethene	ND		2000
Methylene Chloride	60000	J	20000
Carbon Disulfide	ND		2000
MTBE	ND		2000
trans-1,2-Dichloroethene	ND		2000
Vinyl Acetate	ND		100000
1,1-Dichloroethane	13000	J	2000
2-Butanone	ND		20000
cis-1,2-Dichloroethene	110000	J	10000
2,2-Dichloropropane	ND		10000
Chloroform	ND		2000
Bromochloromethane	ND		2000
1,1,1-Trichloroethane	6000	J	2000
1,1-Dichloropropene	ND		10000
Carbon Tetrachloride	ND		1000
1,2-Dichloroethane	1000	J	1000
Benzene	ND		2000
Trichloroethene	190000	J	2000
1,2-Dichloropropane	ND		2000
Bromodichloromethane	ND		2000
Dibromomethane	ND		10000
4-Methyl-2-Pentanone	ND		20000
cis-1,3-Dichloropropene	ND		1000
Toluene	58000	J	2000
trans-1,3-Dichloropropene	ND		1000
1,1,2-Trichloroethane	ND		2000
2-Hexanone	ND		20000
1,3-Dichloropropane	ND		2000
Tetrachloroethene	8200	J	2000
Dibromochloromethane	ND		10000

1/7/99

Volatile Organics by GC/MS

Field ID:	MW14-121798	Sampled:	12/17/98
Lab ID:	137223-004	Received:	12/18/98
Matrix:	Water	Extracted:	12/31/98
Batch#:	45539	Analyzed:	12/31/98
Units:	ug/L		
Diln Fac:	2000		

Analyte	Result	Reporting Limit
1,2-Dibromoethane	ND	2000
Chlorobenzene	ND	2000
1,1,1,2-Tetrachloroethane	ND	2000
Ethylbenzene	3500 J	2000
m,p-Xylenes	14000 J	2000
o-Xylene	5800 J	2000
Styrene	ND	2000
Bromoform	ND	2000
Isopropylbenzene	ND	10000
1,1,2,2-Tetrachloroethane	ND	2000
1,2,3-Trichloropropane	ND	2000
Propylbenzene	ND	10000
Bromobenzene	ND	10000
1,3,5-Trimethylbenzene	6600 J	10000
2-Chlorotoluene	ND	10000
4-Chlorotoluene	ND	10000
tert-Butylbenzene	ND	10000
1,2,4-Trimethylbenzene	19000 J	10000
sec-Butylbenzene	ND	10000
para-Isopropyl Toluene	ND	10000
1,3-Dichlorobenzene	ND	2000
1,4-Dichlorobenzene	ND	2000
n-Butylbenzene	ND	10000
1,2-Dichlorobenzene	ND	2000
1,2-Dibromo-3-Chloropropane	ND	2000
1,2,4-Trichlorobenzene	ND	10000
Hexachlorobutadiene	ND	10000
Naphthalene	9000 J J	10000
1,2,3-Trichlorobenzene	ND	10000

Surrogate	%Recovery	Recovery Limits
Dibromofluoromethane	106	76-128
1,2-Dichloroethane-d4	113	85-121
Toluene-d8	103	92-110
Bromofluorobenzene	99	84-115

J: Estimated Value

EDL
1/21/99

Volatile Organics by GC/MS

Client: Ecology & Environment
Project#: 0125DCTAXX
Location: DC Metals

Analysis Method: EPA 8260
Prep Method: EPA 5030

Field ID: MW130-121798
Lab ID: 137223-005
Matrix: Water
Batch#: 45539
Units: ug/L
Diln Fac: 3333

Sampled: 12/17/98
Received: 12/18/98
Extracted: 12/31/98
Analyzed: 12/31/98

Analyte	Result	Reporting Limit
Freon 12	ND	3300
Chloromethane	ND	3300
Vinyl Chloride	18000 J	1700
Bromomethane	ND	3300
Chloroethane	ND	3300
Trichlorofluoromethane	ND	3300
Acetone	36000 J	33000
Freon 113	ND	17000
1,1-Dichloroethene	ND	3300
Methylene Chloride	ND	33000
Carbon Disulfide	ND	3300
MTBE	ND	3300
trans-1,2-Dichloroethene	ND	3300
Vinyl Acetate	ND	170000
1,1-Dichloroethane	3700 J	3300
2-Butanone	450000 J	33000
cis-1,2-Dichloroethene	ND	17000
2,2-Dichloropropane	ND	17000
Chloroform	ND	3300
Bromochloromethane	ND	3300
1,1,1-Trichloroethane	ND	3300
1,1-Dichloropropene	ND	17000
Carbon Tetrachloride	ND	1700
1,2-Dichloroethane	ND	1700
Benzene	ND	3300
Trichloroethene	ND	3300
1,2-Dichloropropane	ND	3300
Bromodichloromethane	ND	3300
Dibromomethane	ND	17000
4-Methyl-2-Pentanone	99000 J	33000
cis-1,3-Dichloropropene	ND	1700
Toluene	36000 J	3300
trans-1,3-Dichloropropene	ND	1700
1,1,2-Trichloroethane	ND	3300
2-Hexanone	ND	33000
1,3-Dichloropropane	ND	3300
Tetrachloroethene	ND	3300
Dibromochloromethane	ND	17000

1/26/99

Volatile Organics by GC/MS

Field ID:	MW130-121798	Sampled:	12/17/98
Lab ID:	137223-005	Received:	12/18/98
Matrix:	Water	Extracted:	12/31/98
Batch#:	45539	Analyzed:	12/31/98
Units:	ug/L		
Diln Fac:	3333		

Analyte	Result	Reporting Limit
1,2-Dibromoethane	ND	3300
Chlorobenzene	ND	3300
1,1,1,2-Tetrachloroethane	ND	3300
Ethylbenzene	ND	3300
m,p-Xylenes	2100 J	3300
o-Xylene	ND	3300
Styrene	ND	3300
Bromoform	ND	3300
Isopropylbenzene	ND	17000
1,1,2,2-Tetrachloroethane	ND	3300
1,2,3-Trichloropropane	ND	3300
Propylbenzene	ND	17000
Bromobenzene	ND	17000
1,3,5-Trimethylbenzene	ND	17000
2-Chlorotoluene	ND	17000
4-Chlorotoluene	ND	17000
tert-Butylbenzene	ND	17000
1,2,4-Trimethylbenzene	ND	17000
sec-Butylbenzene	ND	17000
para-Isopropyl Toluene	ND	17000
1,3-Dichlorobenzene	ND	3300
1,4-Dichlorobenzene	ND	3300
n-Butylbenzene	ND	17000
1,2-Dichlorobenzene	ND	3300
1,2-Dibromo-3-Chloropropane	ND	3300
1,2,4-Trichlorobenzene	ND	17000
Hexachlorobutadiene	ND	17000
Naphthalene	ND	17000
1,2,3-Trichlorobenzene	ND	17000

Surrogate	%Recovery	Recovery Limits
Dibromofluoromethane	107	76-128
1,2-Dichloroethane-d4	111	85-121
Toluene-d8	101	92-110
Bromofluorobenzene	100	84-115

J: Estimated Value

1/24/99

Curtis & Tompkins, Ltd.

Volatile Organics by GC/MS

Client:	Ecology & Environment	Analysis Method:	EPA 8260
Project#:	0125DCTAXX	Prep Method:	EPA 5030
Location:	DC Metals		
Field ID:	MWB-121798	Sampled:	12/17/98
Lab ID:	137223-006	Received:	12/18/98
Matrix:	Water	Extracted:	12/29/98
Batch#:	45485	Analyzed:	12/29/98
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	5.0
1,1-Dichloroethene	ND	1.0
Methylene Chloride	ND	10
Carbon Disulfide	ND	1.0
MTBE	ND	1.0
trans-1,2-Dichloroethene	ND	1.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	1.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	3.8 J	1.0
Bromochloromethane	ND	1.0
1,1,1-Trichloroethane	ND	1.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	1.0
Trichloroethene	ND	1.0
1,2-Dichloropropane	ND	1.0
Bromodichloromethane	ND	1.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	1.0
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	1.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	1.0
Tetrachloroethene	ND	1.0
Dibromochloromethane	ND	5.0

1/21/99 20

Volatile Organics by GC/MS

Field ID:	MWB-121798	Sampled:	12/17/98
Lab ID:	137223-006	Received:	12/18/98
Matrix:	Water	Extracted:	12/29/98
Batch#:	45485	Analyzed:	12/29/98
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
1,2-Dibromoethane	ND	1.0
Chlorobenzene	ND	1.0
1,1,1,2-Tetrachloroethane	ND	1.0
Ethylbenzene	ND	1.0
m,p-Xylenes	ND	1.0
o-Xylene	ND	1.0
Styrene	ND	1.0
Bromoform	ND	1.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	1.0
1,2,3-Trichloropropane	ND	1.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	1.0
1,2-Dibromo-3-Chloropropane	ND	1.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%Recovery	Recovery Limits
Dibromofluoromethane	103	76-128
1,2-Dichloroethane-d4	108	85-121
Toluene-d8	105	92-110
Bromofluorobenzene	101	84-115

1/4/99

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX
Laboratory: Curtis and Tompkins, Ltd.	Lab Project Number: 137223
Sampling Dates: 12/17/98	Sample Matrix: water
Analytical Method: 8270B	Data Reviewer: Edward Long

REVIEW AND APPROVAL:

Data Reviewer: Edward J. Long Date: 1/26/99

Technical QA Reviewer: [signature] Date: 2/2/99

Project Manager: CMcleod Date: 2/26/99

SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	MW11 - 121798	137223-001
2	GW12 - 121798	137223-002
3	MW13 - 121798	137223-003
4	MW14 - 121798	137223-004
5	MW130 - 121798	137223-005
6	MWB - 121798	137223-006

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

DATA PACKAGE COMPLETENESS CHECKLIST:

Checklist Code:

X	Included: no problems
*	Included: problems noted in review
O	Not Included and/or Not Available
NR	Not Required
RS	Provided As Re-submission

Case Narrative:

X	Case Narrative present

Quality Control Summary Package:

X	Data Summary sheets
X	Matrix Spike/Spike Duplicate Recoveries
X	Laboratory Control Sample Recoveries
X	Method Blank Summaries
X	GC/MS Tuning and Mass Calibration
X	Initial Calibration Data
X	Continuing Calibration Data
X	Surrogate Compound Recovery Summary
X	Internal Standard Area Summary

Sample and Blank Data Package Section

X	Reconstructed Ion Current (RIC) Chromatogram
X	Quantitation Reports
X	Raw and Enhanced Mass Spectra
X	Reference Mass Spectra for Target Compounds
NR	Mass Spectral Library Search for TICs

Raw QC Data Package Section

X	DFTPP and/or BFB mass spectra and mass listings
X	RIC Chromatogram for Standards and MS/MSD Samples
X	Quantitation Reports for Standards and MS/MSD
O	List of Instrument Detection Limits
X	Chain-of-Custody Records
X	Sample Preparation and Analysis Run Logs

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

DATA VALIDATION SUMMARY

The data were reviewed following procedures and limits specified in the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004, OSWER Directive 9360.4-01, dated April 1990).

Indicate with a YES or NO whether each item is acceptable:

1	Holding Times	Yes
2	GC/MS Tuning Criteria	Yes
3	Initial Calibrations	Yes
4	Continuing Calibrations	Yes
5	Laboratory Control Sample	Yes
6	Matrix Spike/Matrix Spike Duplicate	Yes
7	Blanks and Background Samples	Yes
8	Surrogate Compounds	Yes
9	Internal Standards	Yes
10	Duplicate Analyses	Yes
11	Analyte Identification	Yes
12	Analyte Quantitation	Yes
13	Overall Assessment of Data	Yes
14	Usability of Data	Yes

Comments: None

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

1. HOLDING TIMES

___X___ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Samples were extracted and analyzed within required holding times except as noted under Comments. In addition, no problems were identified with regard to sample preservation or custody unless specified. For those sample fractions extracted or analyzed outside holding time requirements, the results have been qualified as estimated (J).

Water Samples:
EPA 8260B: 14 days (from collection) for analysis if preserved; 7 days if unpreserved.
EPA 8270C: 7 days (from collection) for extraction; 40 days (from extraction) for analysis.
EPA 8290: 30 days (from collection) for extraction; 45 days (from extraction) for analysis.
Soil or Other Matrices:
EPA 8260B: 14 days (from collection) for analysis.
EPA 8270C:14 days (from collection) for extraction;40 days (from extraction) for analysis.
EPA 8290: 30 days (from collection) for extraction; 45 days (from extraction) for analysis.

Comments: None.

2. GC/MS TUNING CRITERIA

___X___ BFB (EPA 8260B) or DFTPP (EPA 8270C) has been run for every 12 hours of sample analysis per instrument.

___X___ The BFB or DFTPP ion abundance criteria indicated in EPA/540/G-90/004 have been met for each instrument.

_____ No ion abundance criteria are indicated for EPA 8290; however data demonstrating that the instrument has been tuned was provided.

Comments: None

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

3. INITIAL CALIBRATIONS

__X__ **Acceptable**
_____ **Acceptable with qualification**
_____ **Unacceptable**

Unless flagged below, a 5-point initial calibration was run. In addition, average Relative Response Factor (RRF), and percent relative Standard Deviation (%RSD) values were within control limits (average RRF >= 0.05; %RSD <= 30). For analytes which exceeded these control limits, associated data are qualified as estimated (J). In cases where the low calibration level was not detected, the detection limit is qualified (UJ). In cases where the analyte was not detected in the calibration, all associated data are rejected (R).

Comments: None

4. CONTINUING CALIBRATIONS

__X__ **Acceptable**
_____ **Acceptable with qualification**
_____ **Unacceptable**

Unless flagged below, continuing calibrations were performed at the beginning and at the end of any group of samples and at least every 12 hours. In addition, Relative Response Factors (RRF), and Percent Difference (%D) values were within control limits (RRF >= 0.05; %D <= 25). For analytes which exceeded these control limits, associated data are qualified as estimated (J). In cases where the low calibration level was not detected, the detection limit is qualified (UJ). In cases where the analyte was not detected in the calibration, all associated data are rejected (R).

Comments:
The %D for 2,4-nitrophenol in two continuing calibrations were low (-31% and -28%). The %D for bis (2-ethylhexyl) phthalate in two continuing calibrations were high (30% and 35%). Because the associated sample results were nondetected, no data were qualified.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

5. LABORATORY CONTROL SAMPLE

_____ **Acceptable**
__X__ **Acceptable with qualification**
_____ **Unacceptable**
_____ **No Laboratory Control Samples Analyzed**

Laboratory control sample recoveries are used for a qualitative indication of accuracy (bias) independent of matrix effects. Spike recovery limits of 80% to 120% are specified in EPA/540/G-90/004. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). At the discretion of the reviewer, other limits may be used only if justification can be provided.

Comments: The % recoveries for all of the compounds in the LCS were low (between 50% and 72%), indicating a decrease in instrument sensitivity. Therefore, all detected results in the samples are qualified as estimated (J).

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

_____ **Acceptable**
__X__ **Acceptable with qualification**
_____ **Unacceptable**
_____ **No Matrix Spike/Matrix Spike Duplicates Analyzed**

Matrix spike and matrix spike duplicate recoveries are used for a qualitative indication of accuracy (bias) due to matrix effects. The RPD between the recoveries is used for a qualitative indication of precision. Spike recovery limits of 80% to 120% are specified in EPA/540/G-90/004. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). At the discretion of the reviewer, other limits may be used only if justification can be provided.

Comments:
The % recoveries for many of the compounds in the MS/MSD were low (between 28% and 79%). The detected results in the samples are qualified as estimated (J). Because these results were previously qualified as estimated due to preservation problems, no additional qualifiers were applied.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

7. BLANKS AND BACKGROUND SAMPLES

__X__ Acceptable
_____ Practical Quantitation Limit Adjusted

The following blanks were analyzed:
__X__ Method (preparation) Blanks
__X__ Field Blanks
_____ Instrument Blanks
_____ Rinsate Blanks
_____ Background Samples
_____ VOA Trip Blanks

Preparation (method) blanks were prepared for each batch of samples extracted. A preparation blank was analyzed after every continuing calibration standard, prior to sample analysis unless noted below. Any compound detected in the sample and also detected in any associated blank, must be qualified as non-detect (U) when the sample concentration is less than 5x the blank concentration.

Comments:
The method blank and field blank results were nondetected.

8. SURROGATE COMPOUNDS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No surrogates analyzed; not required for EPA 8290

Surrogate compound recoveries for samples analyzed within a sample group must be within the limits specified in the method. If the surrogate recovery is between 10% and the lower limit, the associated detected results are qualified as estimated (J) and the nondetected results are qualified as estimated (UJ). If the surrogate recovery is <10%, the associated detected results are qualified as estimated (J) and the nondetected results are rejected (R). If the surrogate recovery is above the upper limit, the associated detected results are qualified as estimated (J). Surrogate recoveries which exceeded these limits are noted below and the associated results are qualified on the attached sample report forms.

Comments: None

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

9. INTERNAL STANDARDS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Internal Standard area counts for samples analyzed within a sample group must be within the range of 50% to 200% of the internal standard area for the continuing calibration. If the internal standard area is between 10% and 50% of this value, the associated detected results are qualified as estimated (J) and the nondetected results are qualified as estimated (UJ). If the internal standard area is <10% of the calibration area, both the detected and nondetected results are rejected (R). If the internal standard area is >200% of the calibration area, the associated detected results are qualified as estimated (J). Internal standards which exceeded these limits are noted below and the associated results are qualified on the attached sample report forms.

Comments: None

10. DUPLICATE ANALYSES

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Duplicates Analyzed

Type of duplicates analyzed:
__X__ Field Duplicates
_____ Laboratory Duplicates

Calculate the relative Percent Difference (RPD) between the members of duplicate pairs using the equation indicated below. Qualify the results as estimated (J) for any analyte whose RPD exceeds that specified in the Sampling and Analysis Plan.

$$RPD = \frac{2(Value\ 1 - Value\ 2)}{Value\ 1 + Value\ 2} \times 100\%$$

Comments: None

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

11. ANALYTE IDENTIFICATION

Evaluate the ion profiles for the sample analytes and compare them to the library ion profiles provided by the laboratory. Note any identifications which are not sufficiently supported by comparison to known ion profiles.

Comments:
Analyte identification is acceptable.

12. ANALYTE QUANTITATION

Confirm that analyte quantitation was performed correctly using the following formulas:

EPA 8260B, water samples:

$$\text{ug/L} = \frac{\text{(analyte area)(amount of internal standard, ng)}}{\text{(internal standard area)(RF)(volume of water purged, mL)}}$$

EPA 8260B, soil samples:

$$\text{ug/kg} = \frac{\text{(analyte area)(amount of internal standard, ng)}}{\text{(internal standard area)(RF)(weight of soil extracted, g)(fraction solids)}}$$

EPA 8270C and 8290, water samples:

$$\text{ug/L} = \frac{\text{(analyte area)(amount of internal standard, ng)(total volume of extract, uL)}}{\text{(internal standard area)(RF)(volume of sample extracted, mL)(injection volume, uL)}}$$

EPA 8270C and 8290, soil samples:

$$\text{ug/kg} = \frac{\text{(analyte area)(amount of internal standard, ng)(total volume of extract, uL)}}{\text{(internal standard area)(RF)(weight of sample extracted, g)(fraction solids)(injection volume, uL)}}$$

Comments:
Analyte quantitation is acceptable.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

13. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the overall data usability for the specified level.

_____ **Acceptable**
__X__ **Acceptable with Qualification**
_____ **Rejected**

Accepted data meet the minimum requirements for the following EPA data category:
_____ **ERS Screening**
_____ **Non-definitive with 10 % Conformation by Definitive Methodology**
_____ **Definitive, Comprehensive Statistical Error Determination was performed.**
__X__ **Definitive, Comprehensive Statistical Error Determination was not performed.**

Any qualifications to individual sample analysis results are detailed in the appropriate section above or appear under the comments section below. In cases where several QC criteria are out of specification, it may be appropriate to further qualify the data usability. The data reviewer must use professional judgment and express concerns and comments on the data validity for each specific data package.

Comments: Because the low LCS and MS/MSD recoveries did not suggest a probability that false negatives or false positives could be reported, the data are acceptable with the detected results qualified as estimated.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	**Location: Oakland, CA**
Project TDD Number: 09-9611-0016	**PAN: 09-0125-DCRS-XX**

14. USABILITY OF DATA

A. These data are considered usable for the following the data use objectives stated in the DC Metals Site Quality Assurance Sampling Plan (QASP).

The following data use objectives were indicated in the QASP:
1. To establish the initial and continuing groundwater quality, and to determine whether the treatment system is improving the groundwater quality.

2. To determine when clean-up goals have been met.

Detected results were qualified as estimated due to low LCS and MS/MSD recoveries. Because there is a low probability that false negatives or false positives could be reported, the data are usable for the purposes indicated above.

B. These data meet quality objectives stated in the QASP.
As indicated in Section 3.0 of the QASP, the sample analyses used to document monitoring well groundwater quality will require fully validatable data packages and data in the "definitive" category. The data in this package meet these requirements.

Attached are copies of all data summary sheets, with data qualifiers indicated, and a copy of the chain of custody for the samples.

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 9
75 Hawthorne Street
San Francisco, California 94105

CHAIN OF CUSTODY RECORD

137223

PROJ NO.	PROJECT NAME
0125DCTA	DC Metals

SAMPLERS: *(Signature)* C. McLeod

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	8240/8260	8270	CAM17 by GCMS	MS/MSD	REMARKS
	12/17/90	1015		✓	MW11-121790	3x40ml	✓				
		"		✓	"	2x1L		✓			
		"		✓	"	1x1L			✓		
		0715		✓	CW MW12-121790	6x40ml	✓			✓	Probable High Concentration
		"		✓	"	3x1L		✓		✓	
		"		✓	"	2x1L			✓	✓	
		1350		✓	NW MW13-121790	3x40ml	✓				
		"		✓	"	2x1L		✓			Known High Concentration
		"		✓	"	1x1L			✓		
		1040		✓	MW14-121790	3x40ml	✓				
		"		✓	"	2x1L		✓			Known High Concentration
		"		✓	"	1x1L			✓		
		1400		✓	MW130-121790	3x40ml	✓				
		"		✓	"	2x1L		✓			Known High Concentration
		"		✓	"	1x1L			✓		

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
C McLeod	12/18/90 1246	12/18/90 2:45			
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

CHAIN OF CUSTODY RECORD

137223

REGION 9
75 Hawthorne Street
San Francisco, California 94105

PROJ. NO.	PROJECT NAME
0125 DCTA	DC Metals

SAMPLERS: (Signature)
C. McLeod Nina Sutherland

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	8240/8260	8270	CAM 17 by ICP				REMARKS
	12/7/98	1445		✓	MWB-121798	3x40 ml	✓						
	"	"		✓	"	1 x 1L		✓					
	"	"		✓	"	1 x 1L			✓				

Standard t-a-t (15 days)
Data validation package (30 days)

Fax results to:
Cindy McLeod
(415) 981 0801

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
CMcLeod	12/10/98 1246	12/8/98 1246			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
				Ecology & Environment	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

Semivolatile Organics by GC/MS

Client:	Ecology & Environment	Analysis Method:	EPA 8270B
Project#:	0125DCTAXX	Prep Method:	EPA 3520
Location:	DC Metals		
Field ID:	MW11-121798	Sampled:	12/17/98
Lab ID:	137223-001	Received:	12/18/98
Matrix:	Water	Extracted:	12/23/98
Batch#:	45449	Analyzed:	12/29/98
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
N-Nitrosodimethylamine	ND	9.6
Phenol	ND	9.6
Aniline	ND	9.6
bis(2-Chloroethyl)ether	ND	9.6
2-Chlorophenol	ND	9.6
1,3-Dichlorobenzene	ND	9.6
1,4-Dichlorobenzene	ND	9.6
Benzyl alcohol	ND	9.6
1,2-Dichlorobenzene	ND	9.6
2-Methylphenol	ND	9.6
bis(2-Chloroisopropyl) ether	ND	9.6
3,4-Methylphenol	ND	9.6
N-Nitroso-di-n-propylamine	ND	9.6
Hexachloroethane	ND	9.6
Nitrobenzene	ND	9.6
Isophorone	ND	9.6
2-Nitrophenol	ND	48
2,4-Dimethylphenol	ND	9.6
Benzoic acid	ND	48
bis(2-Chloroethoxy)methane	ND	9.6
2,4-Dichlorophenol	ND	9.6
1,2,4-Trichlorobenzene	ND	9.6
Naphthalene	ND	9.6
4-Chloroaniline	ND	9.6
Hexachlorobutadiene	ND	9.6
4-Chloro-3-methylphenol	ND	9.6
2-Methylnaphthalene	ND	9.6
Hexachlorocyclopentadiene	ND	48
2,4,6-Trichlorophenol	ND	9.6
2,4,5-Trichlorophenol	ND	9.6
2-Chloronaphthalene	ND	9.6
2-Nitroaniline	ND	48
Dimethylphthalate	ND	9.6
Acenaphthylene	ND	9.6
2,6-Dinitrotoluene	ND	9.6
3-Nitroaniline	ND	48
Acenaphthene	ND	9.6
2,4-Dinitrophenol	ND	48

1/25/99

Semivolatile Organics by GC/MS

Field ID:	MW11-121798	Sampled:	12/17/98
Lab ID:	137223-001	Received:	12/18/98
Matrix:	Water	Extracted:	12/23/98
Batch#:	45449	Analyzed:	12/29/98
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
4-Nitrophenol	ND	48
Dibenzofuran	ND	9.6
2,4-Dinitrotoluene	ND	9.6
Diethylphthalate	ND	9.6
Fluorene	ND	9.6
4-Chlorophenyl-phenylether	ND	9.6
4-Nitroaniline	ND	48
4,6-Dinitro-2-methylphenol	ND	48
N-Nitrosodiphenylamine	ND	9.6
Azobenzene	ND	9.6
4-Bromophenyl-phenylether	ND	9.6
Hexachlorobenzene	ND	9.6
Pentachlorophenol	ND	48
Phenanthrene	ND	9.6
Anthracene	ND	9.6
Di-n-butylphthalate	ND	9.6
Fluoranthene	ND	9.6
Pyrene	ND	9.6
Butylbenzylphthalate	ND	9.6
3,3'-Dichlorobenzidine	ND	48
Benzo(a)anthracene	ND	9.6
Chrysene	ND	9.6
bis(2-Ethylhexyl)phthalate	ND	9.6
Di-n-octylphthalate	ND	9.6
Benzo(b,k)fluoranthene	ND	9.6
Benzo(a)pyrene	ND	9.6
Indeno(1,2,3-cd)pyrene	ND	9.6
Dibenz(a,h)anthracene	ND	9.6
Benzo(g,h,i)perylene	ND	9.6

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	67	17-107
Phenol-d5	78	18-115
2,4,6-Tribromophenol	80	14-121
Nitrobenzene-d5	74	36-115
2-Fluorobiphenyl	76	36-113
Terphenyl-d14	31	17-115

EJL 1/25/99

Semivolatile Organics by GC/MS

Client:	Ecology & Environment	Analysis Method:	EPA 8270B
Project#:	0125DCTAXX	Prep Method:	EPA 3520
Location:	DC Metals		
Field ID:	GW12-121798	Sampled:	12/17/98
Lab ID:	137223-002	Received:	12/18/98
Matrix:	Water	Extracted:	12/23/98
Batch#:	45449	Analyzed:	12/30/98
Units:	ug/L		
Diln Fac:	4		

Analyte	Result		Reporting Limit
N-Nitrosodimethylamine	ND		38
Phenol	57	J	38
Aniline	ND		38
bis(2-Chloroethyl)ether	ND		38
2-Chlorophenol	ND		38
1,3-Dichlorobenzene	ND		38
1,4-Dichlorobenzene	ND		38
Benzyl alcohol	ND		38
1,2-Dichlorobenzene	ND		38
2-Methylphenol	280	J	38
bis(2-Chloroisopropyl) ether	ND		38
3,4-Methylphenol	250	J	38
N-Nitroso-di-n-propylamine	ND		38
Hexachloroethane	ND		38
Nitrobenzene	ND		38
Isophorone	ND		38
2-Nitrophenol	ND		190
2,4-Dimethylphenol	37 J	J	38
Benzoic acid	520	J	190
bis(2-Chloroethoxy)methane	ND		38
2,4-Dichlorophenol	ND		38
1,2,4-Trichlorobenzene	ND		38
Naphthalene	24 J	J	38
4-Chloroaniline	ND		38
Hexachlorobutadiene	ND		38
4-Chloro-3-methylphenol	ND		38
2-Methylnaphthalene	20 J	J	38
Hexachlorocyclopentadiene	ND		190
2,4,6-Trichlorophenol	ND		38
2,4,5-Trichlorophenol	ND		38
2-Chloronaphthalene	ND		38
2-Nitroaniline	ND		190
Dimethylphthalate	ND		38
Acenaphthylene	ND		38
2,6-Dinitrotoluene	ND		38
3-Nitroaniline	ND		190
Acenaphthene	ND		38
2,4-Dinitrophenol	ND		190

1/25/99

Semivolatile Organics by GC/MS

Field ID:	GW12-121798	Sampled:	12/17/98
Lab ID:	137223-002	Received:	12/18/98
Matrix:	Water	Extracted:	12/23/98
Batch#:	45449	Analyzed:	12/30/98
Units:	ug/L		
Diln Fac:	4		

Analyte	Result	Reporting Limit
4-Nitrophenol	ND	190
Dibenzofuran	ND	38
2,4-Dinitrotoluene	ND	38
Diethylphthalate	ND	38
Fluorene	ND	38
4-Chlorophenyl-phenylether	ND	38
4-Nitroaniline	ND	190
4,6-Dinitro-2-methylphenol	ND	190
N-Nitrosodiphenylamine	ND	38
Azobenzene	ND	38
4-Bromophenyl-phenylether	ND	38
Hexachlorobenzene	ND	38
Pentachlorophenol	ND	190
Phenanthrene	ND	38
Anthracene	ND	38
Di-n-butylphthalate	ND	38
Fluoranthene	ND	38
Pyrene	ND	38
Butylbenzylphthalate	ND	38
3,3'-Dichlorobenzidine	ND	190
Benzo(a)anthracene	ND	38
Chrysene	ND	38
bis(2-Ethylhexyl)phthalate	ND	38
Di-n-octylphthalate	ND	38
Benzo(b,k)fluoranthene	ND	38
Benzo(a)pyrene	ND	38
Indeno(1,2,3-cd)pyrene	ND	38
Dibenz(a,h)anthracene	ND	38
Benzo(g,h,i)perylene	ND	38

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	72	17-107
Phenol-d5	80	18-115
2,4,6-Tribromophenol	75	14-121
Nitrobenzene-d5	81	36-115
2-Fluorobiphenyl	70	36-113
Terphenyl-d14	27	17-115

J: Estimated Value

1/25/99

Semivolatile Organics by GC/MS

Client:	Ecology & Environment	Analysis Method:	EPA 8270B
Project#:	0125DCTAXX	Prep Method:	EPA 3520
Location:	DC Metals		
Field ID:	MW13-121798	Sampled:	12/17/98
Lab ID:	137223-003	Received:	12/18/98
Matrix:	Water	Extracted:	12/23/98
Batch#:	45449	Analyzed:	12/30/98
Units:	ug/L		
Diln Fac:	10		

Analyte	Result	Reporting Limit
N-Nitrosodimethylamine	ND	190
Phenol	150 J J	190
Aniline	ND	190
bis(2-Chloroethyl)ether	ND	190
2-Chlorophenol	ND	190
1,3-Dichlorobenzene	ND	190
1,4-Dichlorobenzene	ND	190
Benzyl alcohol	ND	190
1,2-Dichlorobenzene	ND	190
2-Methylphenol	560 J	190
bis(2-Chloroisopropyl) ether	ND	190
3,4-Methylphenol	1900 J	190
N-Nitroso-di-n-propylamine	ND	190
Hexachloroethane	ND	190
Nitrobenzene	ND	190
Isophorone	ND	190
2-Nitrophenol	ND	950
2,4-Dimethylphenol	280 J	190
Benzoic acid	2800 J	950
bis(2-Chloroethoxy)methane	ND	190
2,4-Dichlorophenol	ND	190
1,2,4-Trichlorobenzene	ND	190
Naphthalene	560 J	190
4-Chloroaniline	ND	190
Hexachlorobutadiene	ND	190
4-Chloro-3-methylphenol	ND	190
2-Methylnaphthalene	2300 J	190
Hexachlorocyclopentadiene	ND	950
2,4,6-Trichlorophenol	ND	190
2,4,5-Trichlorophenol	ND	190
2-Chloronaphthalene	ND	190
2-Nitroaniline	ND	950
Dimethylphthalate	ND	190
Acenaphthylene	ND	190
2,6-Dinitrotoluene	ND	190
3-Nitroaniline	ND	950
Acenaphthene	ND	190
2,4-Dinitrophenol	ND	950

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Semivolatile Organics by GC/MS

Field ID:	MW13-121798	Sampled:	12/17/98
Lab ID:	137223-003	Received:	12/18/98
Matrix:	Water	Extracted:	12/23/98
Batch#:	45449	Analyzed:	12/30/98
Units:	ug/L		
Diln Fac:	10		

Analyte	Result	Reporting Limit
4-Nitrophenol	ND	950
Dibenzofuran	ND	190
2,4-Dinitrotoluene	ND	190
Diethylphthalate	ND	190
Fluorene	ND	190
4-Chlorophenyl-phenylether	ND	190
4-Nitroaniline	ND	950
4,6-Dinitro-2-methylphenol	ND	950
N-Nitrosodiphenylamine	ND	190
Azobenzene	ND	190
4-Bromophenyl-phenylether	ND	190
Hexachlorobenzene	ND	190
Pentachlorophenol	ND	950
Phenanthrene	ND	190
Anthracene	ND	190
Di-n-butylphthalate	ND	190
Fluoranthene	ND	190
Pyrene	ND	190
Butylbenzylphthalate	ND	190
3,3'-Dichlorobenzidine	ND	950
Benzo(a)anthracene	ND	190
Chrysene	ND	190
bis(2-Ethylhexyl)phthalate	ND	190
Di-n-octylphthalate	ND	190
Benzo(b,k)fluoranthene	ND	190
Benzo(a)pyrene	ND	190
Indeno(1,2,3-cd)pyrene	ND	190
Dibenz(a,h)anthracene	ND	190
Benzo(g,h,i)perylene	ND	190

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	DO*	17-107
Phenol-d5	DO*	18-115
2,4,6-Tribromophenol	DO*	14-121
Nitrobenzene-d5	DO*	36-115
2-Fluorobiphenyl	DO*	36-113
Terphenyl-d14	DO*	17-115

J: Estimated Value
* Values outside of QC limits
DO: Surrogate diluted out

1/25/99

Semivolatile Organics by GC/MS

Client:	Ecology & Environment	Analysis Method:	EPA 8270B
Project#:	0125DCTAXX	Prep Method:	EPA 3520
Location:	DC Metals		
Field ID:	MW14-121798	Sampled:	12/17/98
Lab ID:	137223-004	Received:	12/18/98
Matrix:	Water	Extracted:	12/23/98
Batch#:	45449	Analyzed:	12/30/98
Units:	ug/L		
Diln Fac:	100		

Analyte	Result		Reporting Limit
N-Nitrosodimethylamine	ND		23000
Phenol	ND		23000
Aniline	ND		23000
bis(2-Chloroethyl)ether	ND		23000
2-Chlorophenol	ND		23000
1,3-Dichlorobenzene	ND		23000
1,4-Dichlorobenzene	ND		23000
Benzyl alcohol	ND		23000
1,2-Dichlorobenzene	ND		23000
2-Methylphenol	ND		23000
bis(2-Chloroisopropyl) ether	ND		23000
3,4-Methylphenol	ND		23000
N-Nitroso-di-n-propylamine	ND		23000
Hexachloroethane	ND		23000
Nitrobenzene	ND		23000
Isophorone	ND		23000
2-Nitrophenol	ND		120000
2,4-Dimethylphenol	ND		23000
Benzoic acid	ND		120000
bis(2-Chloroethoxy)methane	ND		23000
2,4-Dichlorophenol	ND		23000
1,2,4-Trichlorobenzene	ND		23000
Naphthalene	57000	J	23000
4-Chloroaniline	ND		23000
Hexachlorobutadiene	ND		23000
4-Chloro-3-methylphenol	ND		23000
2-Methylnaphthalene	290000	J	23000
Hexachlorocyclopentadiene	ND		120000
2,4,6-Trichlorophenol	ND		23000
2,4,5-Trichlorophenol	ND		23000
2-Chloronaphthalene	ND		23000
2-Nitroaniline	ND		120000
Dimethylphthalate	ND		23000
Acenaphthylene	ND		23000
2,6-Dinitrotoluene	ND		23000
3-Nitroaniline	ND		120000
Acenaphthene	ND		23000
2,4-Dinitrophenol	ND		120000

Semivolatile Organics by GC/MS

Field ID:	MW14-121798	Sampled:	12/17/98
Lab ID:	137223-004	Received:	12/18/98
Matrix:	Water	Extracted:	12/23/98
Batch#:	45449	Analyzed:	12/30/98
Units:	ug/L		
Diln Fac:	100		

Analyte	Result	Reporting Limit
4-Nitrophenol	ND	120000
Dibenzofuran	ND	23000
2,4-Dinitrotoluene	ND	23000
Diethylphthalate	ND	23000
Fluorene	ND	23000
4-Chlorophenyl-phenylether	ND	23000
4-Nitroaniline	ND	120000
4,6-Dinitro-2-methylphenol	ND	120000
N-Nitrosodiphenylamine	ND	23000
Azobenzene	ND	23000
4-Bromophenyl-phenylether	ND	23000
Hexachlorobenzene	ND	23000
Pentachlorophenol	ND	120000
Phenanthrene	ND	23000
Anthracene	ND	23000
Di-n-butylphthalate	ND	23000
Fluoranthene	ND	23000
Pyrene	ND	23000
Butylbenzylphthalate	ND	23000
3,3'-Dichlorobenzidine	ND	120000
Benzo(a)anthracene	ND	23000
Chrysene	ND	23000
bis(2-Ethylhexyl)phthalate	ND	23000
Di-n-octylphthalate	ND	23000
Benzo(b,k)fluoranthene	ND	23000
Benzo(a)pyrene	ND	23000
Indeno(1,2,3-cd)pyrene	ND	23000
Dibenz(a,h)anthracene	ND	23000
Benzo(g,h,i)perylene	ND	23000

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	DO*	17-107
Phenol-d5	DO*	18-115
2,4,6-Tribromophenol	DO*	14-121
Nitrobenzene-d5	DO*	36-115
2-Fluorobiphenyl	DO*	36-113
Terphenyl-d14	DO*	17-115

* Values outside of QC limits
DO: Surrogate diluted out

11/25/99

Semivolatile Organics by GC/MS

Client:	Ecology & Environment	Analysis Method:	EPA 8270B
Project#:	0125DCTAXX	Prep Method:	EPA 3520
Location:	DC Metals		
Field ID:	MW130-121798	Sampled:	12/17/98
Lab ID:	137223-005	Received:	12/18/98
Matrix:	Water	Extracted:	12/23/98
Batch#:	45449	Analyzed:	12/30/98
Units:	ug/L		
Diln Fac:	10		

Analyte	Result	Reporting Limit
N-Nitrosodimethylamine	ND	190
Phenol	130 J J	190
Aniline	ND	190
bis(2-Chloroethyl)ether	ND	190
2-Chlorophenol	ND	190
1,3-Dichlorobenzene	ND	190
1,4-Dichlorobenzene	ND	190
Benzyl alcohol	ND	190
1,2-Dichlorobenzene	ND	190
2-Methylphenol	570 J	190
bis(2-Chloroisopropyl) ether	ND	190
3,4-Methylphenol	2000 J	190
N-Nitroso-di-n-propylamine	ND	190
Hexachloroethane	ND	190
Nitrobenzene	ND	190
Isophorone	ND	190
2-Nitrophenol	ND	950
2,4-Dimethylphenol	280 J	190
Benzoic acid	2900 J	950
bis(2-Chloroethoxy)methane	ND	190
2,4-Dichlorophenol	ND	190
1,2,4-Trichlorobenzene	ND	190
Naphthalene	560 J	190
4-Chloroaniline	ND	190
Hexachlorobutadiene	ND	190
4-Chloro-3-methylphenol	ND	190
2-Methylnaphthalene	2300 J	190
Hexachlorocyclopentadiene	ND	950
2,4,6-Trichlorophenol	ND	190
2,4,5-Trichlorophenol	ND	190
2-Chloronaphthalene	ND	190
2-Nitroaniline	ND	950
Dimethylphthalate	ND	190
Acenaphthylene	ND	190
2,6-Dinitrotoluene	ND	190
3-Nitroaniline	ND	950
Acenaphthene	ND	190
2,4-Dinitrophenol	ND	950

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Semivolatile Organics by GC/MS

Field ID:	MW130-121798	Sampled:	12/17/98
Lab ID:	137223-005	Received:	12/18/98
Matrix:	Water	Extracted:	12/23/98
Batch#:	45449	Analyzed:	12/30/98
Units:	ug/L		
Diln Fac:	10		

Analyte	Result	Reporting Limit
4-Nitrophenol	ND	950
Dibenzofuran	ND	190
2,4-Dinitrotoluene	ND	190
Diethylphthalate	ND	190
Fluorene	ND	190
4-Chlorophenyl-phenylether	ND	190
4-Nitroaniline	ND	950
4,6-Dinitro-2-methylphenol	ND	950
N-Nitrosodiphenylamine	ND	190
Azobenzene	ND	190
4-Bromophenyl-phenylether	ND	190
Hexachlorobenzene	ND	190
Pentachlorophenol	ND	950
Phenanthrene	ND	190
Anthracene	ND	190
Di-n-butylphthalate	ND	190
Fluoranthene	ND	190
Pyrene	ND	190
Butylbenzylphthalate	ND	190
3,3'-Dichlorobenzidine	ND	950
Benzo(a)anthracene	ND	190
Chrysene	ND	190
bis(2-Ethylhexyl)phthalate	ND	190
Di-n-octylphthalate	ND	190
Benzo(b,k)fluoranthene	ND	190
Benzo(a)pyrene	ND	190
Indeno(1,2,3-cd)pyrene	ND	190
Dibenz(a,h)anthracene	ND	190
Benzo(g,h,i)perylene	ND	190

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	DO*	17-107
Phenol-d5	DO*	18-115
2,4,6-Tribromophenol	DO*	14-121
Nitrobenzene-d5	DO*	36-115
2-Fluorobiphenyl	DO*	36-113
Terphenyl-d14	DO*	17-115

J: Estimated Value
* Values outside of QC limits
DO: Surrogate diluted out

1/25/99

Semivolatile Organics by GC/MS

Client:	Ecology & Environment	Analysis Method:	EPA 8270B
Project#:	0125DCTAXX	Prep Method:	EPA 3520
Location:	DC Metals		
Field ID:	MWB-121798	Sampled:	12/17/98
Lab ID:	137223-006	Received:	12/18/98
Matrix:	Water	Extracted:	12/23/98
Batch#:	45449	Analyzed:	12/29/98
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
N-Nitrosodimethylamine	ND	10
Phenol	ND	10
Aniline	ND	10
bis(2-Chloroethyl)ether	ND	10
2-Chlorophenol	ND	10
1,3-Dichlorobenzene	ND	10
1,4-Dichlorobenzene	ND	10
Benzyl alcohol	ND	10
1,2-Dichlorobenzene	ND	10
2-Methylphenol	ND	10
bis(2-Chloroisopropyl) ether	ND	10
3,4-Methylphenol	ND	10
N-Nitroso-di-n-propylamine	ND	10
Hexachloroethane	ND	10
Nitrobenzene	ND	10
Isophorone	ND	10
2-Nitrophenol	ND	51
2,4-Dimethylphenol	ND	10
Benzoic acid	ND	51
bis(2-Chloroethoxy)methane	ND	10
2,4-Dichlorophenol	ND	10
1,2,4-Trichlorobenzene	ND	10
Naphthalene	ND	10
4-Chloroaniline	ND	10
Hexachlorobutadiene	ND	10
4-Chloro-3-methylphenol	ND	10
2-Methylnaphthalene	ND	10
Hexachlorocyclopentadiene	ND	51
2,4,6-Trichlorophenol	ND	10
2,4,5-Trichlorophenol	ND	10
2-Chloronaphthalene	ND	10
2-Nitroaniline	ND	51
Dimethylphthalate	ND	10
Acenaphthylene	ND	10
2,6-Dinitrotoluene	ND	10
3-Nitroaniline	ND	51
Acenaphthene	ND	10
2,4-Dinitrophenol	ND	51

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Semivolatile Organics by GC/MS

Field ID:	MWB-121798	Sampled:	12/17/98
Lab ID:	137223-006	Received:	12/18/98
Matrix:	Water	Extracted:	12/23/98
Batch#:	45449	Analyzed:	12/29/98
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
4-Nitrophenol	ND	51
Dibenzofuran	ND	10
2,4-Dinitrotoluene	ND	10
Diethylphthalate	ND	10
Fluorene	ND	10
4-Chlorophenyl-phenylether	ND	10
4-Nitroaniline	ND	51
4,6-Dinitro-2-methylphenol	ND	51
N-Nitrosodiphenylamine	ND	10
Azobenzene	ND	10
4-Bromophenyl-phenylether	ND	10
Hexachlorobenzene	ND	10
Pentachlorophenol	ND	51
Phenanthrene	ND	10
Anthracene	ND	10
Di-n-butylphthalate	ND	10
Fluoranthene	ND	10
Pyrene	ND	10
Butylbenzylphthalate	ND	10
3,3'-Dichlorobenzidine	ND	51
Benzo(a)anthracene	ND	10
Chrysene	ND	10
bis(2-Ethylhexyl)phthalate	ND	10
Di-n-octylphthalate	ND	10
Benzo(b,k)fluoranthene	ND	10
Benzo(a)pyrene	ND	10
Indeno(1,2,3-cd)pyrene	ND	10
Dibenz(a,h)anthracene	ND	10
Benzo(g,h,i)perylene	ND	10

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	63	17-107
Phenol-d5	64	18-115
2,4,6-Tribromophenol	71	14-121
Nitrobenzene-d5	70	36-115
2-Fluorobiphenyl	73	36-113
Terphenyl-d14	73	17-115

1/25/99

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	**Location: Oakland, CA**
Project TDD Number: 09-9611-0016	**PAN: 09-0125-DCRS-XX**
Laboratory: Curtis and Tompkins, Ltd.	**Lab Project Number: 137223**
Sampling Dates: 12/17/98	**Sample Matrix: water**
Analytical Method: Metals (6010A/7470)	

REVIEW AND APPROVAL:

Data Reviewer: Edward T. Long **Date:** 1/29/99

Technical QA Reviewer: [signature] **Date:** 2/1/99

Project Manager: [signature] **Date:** 2/26/99

SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	MW11 - 121798	137223-001
2	GW12 - 121798	137223-002
3	MW13 - 121798	137223-003
4	MW14 - 121798	137223-004
5	MW130 - 121798	137223-005
6	MWB - 121798	137223-006

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

DATA PACKAGE COMPLETENESS CHECKLIST:

Checklist Code:

- X Included: no problems
- * Included: problems noted in review
- O Not Included and/or Not Available
- NR Not Required
- RS Provided As Re-submission

Case Narrative:

- X Case Narrative present

Quality Control Summary Package:

- X Data Summary sheets
- X Initial and Continuing Calibration results
- O CRDL Standard results
- X Preparation Blank and Calibration Blank results
- X ICP Interference Check Sample results
- NR Matrix Spike recoveries
- NR Matrix Duplicate results
- X Laboratory Control Sample recoveries
- NR Method of Standard Additions results
- NR ICP Serial Dilution results
- X Instrument Detection Limits
- X ICP Interelement Correction Factors
- X ICP Linear Ranges
- X Preparation Log
- X Analysis Run Log

Raw QC Data Package Section

- X Chain-of-Custody Records
- X Instrument Printouts
- X Sample Preparation Notebook Pages
- X Logbook and Worksheet Pages
- NR Percent Solids Determination

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

DATA VALIDATION SUMMARY

The data were reviewed following procedures and limits specified in the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004, OSWER Directive 9360.4-01, dated April 1990).

Indicate with a YES or NO whether each item is acceptable:

1	**Holding Times**	Yes
2	**Initial and Continuing Calibrations**	Yes
3	**Laboratory Control Sample**	Yes
4	**Matrix Spike**	Yes
5	**Blanks and Background Samples**	Yes
6	**Duplicate Analyses**	Yes
7	**Inductively Coupled Plasma QC**	Yes
8	**Furnace Atomic Absorption QC**	Yes
9	**Analyte Quantitation**	Yes
10	**Overall Assessment of Data**	Yes
11	**Usability of Data**	Yes

Comments: None.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

1. HOLDING TIMES

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Samples were extracted and analyzed within required holding times except as noted under Comments. In addition, no problems were identified with regard to sample preservation or custody unless specified. For those samples analyzed outside holding time requirements, the detected results have been qualified as estimated (J), and the nondetected results have been qualified either as estimated (UJ) or rejected (R) based on the reviewer's judgement.

All Sample Matrices:
Mercury: 28 days (from collection) for analysis.
Hexavalent chromium: 24 hours (from collection) for analysis.
All other metals: 180 days (from collection) for analysis.

Comments: None

2. INITIAL AND CONTINUING CALIBRATION VERIFICATION

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Unless flagged below, an initial calibration verification (ICV) and a calibration blank were analyzed at the beginning of the run, and a continuing calibration verification (CCV) and a calibration blank were analyzed after every ten samples, and at the end of the run. ICV and CCV recoveries were within a range of 80-120% for mercury and tin, and 90-110% for all other metals. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 65% or above 135% (for mercury and tin) or below 75% or above 125% (for all other metals), all associated data are rejected (R).

Comments: None

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

3. LABORATORY CONTROL SAMPLE

___X___ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Laboratory Control Samples Analyzed

Laboratory control sample recoveries are used for a qualitative indication of accuracy (bias) independent of matrix effects. Unless flagged below, one laboratory control sample was analyzed at a rate of one per batch or one per 20 samples. Recoveries were within a range of 80-120%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

Comments: None

4. MATRIX SPIKE

___X___ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Matrix Spikes Analyzed

Matrix spike recoveries are used for a qualitative indication of accuracy (bias) due to matrix effects. Unless flagged below, one laboratory control sample was analyzed at a rate of one per batch or one per 20 samples. Recoveries were within a range of 75-125%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

Comments: None.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

5. BLANKS AND BACKGROUND SAMPLES

__X__ Acceptable
_____ Detection Limits Adjusted

The following blanks were analyzed:
__X__ Method (preparation) Blanks
__X__ Field Blanks
__X__ Calibration Blanks
_____ Rinsate Blanks
_____ Background Samples

Preparation (method) blanks were prepared for each batch of samples extracted. A preparation blank was analyzed after every continuing calibration standard, prior to sample analysis unless noted below. Any compound detected in the sample and also detected in any associated blank, must be qualified as non-detect (U) when the sample concentration is less than 5x the blank concentration.

Comments: Method blank, field blank, and calibration blank results were nondetected.

6. DUPLICATE ANALYSES

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Duplicates Analyzed

Type of duplicates analyzed:
__X__ Field Duplicates
__X__ Laboratory Duplicates

Calculate the relative Percent Difference (RPD) between the members of duplicate pairs using the equation indicated below. Qualify the detected results as estimated (J) for any analyte whose RPD in a laboratory duplicate exceeds 20% for water samples or 35% for soil samples.

$$RPD = \frac{2(Value\ 1 - Value\ 2)}{Value\ 1 + Value\ 2} \times 100\%$$

Comments: None.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

7. INDUCTIVELY COUPLED PLASMA QC

___X___ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ Not required

Interference Check Samples (ICS) - Unless flagged below, an ICS was analyzed at the beginning and end of each run and at least twice every eight hours. Recoveries were within a range of 80-120%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J) if the concentrations of Al, Ca, Fe, or Mg are higher in the sample than in the ICS.

Serial Dilution Analysis - Unless flagged below, a serial dilution analysis was performed at a rate of one per 20 samples on a sample having analyte concentrations greater than 50 times the IDL. Percent differences were within a range of 0-10%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J).

Comments: None.

8. FURNACE ATOMIC ABSORPTION QC

_____ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
___X___ Not required

Post-digestion spikes - If a furnace AA result was flagged by the laboratory with an E to indicate interference, and the associated post-digestion spike recovery was less than 10%, the associated results are rejected (R).

Method of Standard Additions - If the method of standard additions was required and the correlation coefficient was less than 0.995, the associated results were qualified as estimated (J).

Comments: None

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

9. ANALYTE QUANTITATION

Confirm that analyte quantitation was performed correctly using the following formulas:

Water samples:

$$\text{ug/L} = \frac{\text{(Instrument printout concentration, mg/L)(1000 ug/mg)(final volume of extract, mL)}}{\text{(Initial volume of extract, mL)}}$$

Soil samples:

$$\text{mg/kg} = \frac{\text{(Instrument printout concentration, mg/L)(final volume of extract, mL)(0.001 L/mL)}}{\text{(weight of sample extracted, g)(0.001 kg/g)(fraction solids)}}$$

Comments: Analyte quantitation was acceptable. No errors were found.

10. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the overall data usability for the specified level.

_____ **Acceptable**
__X__ **Acceptable with Qualification**
_____ **Rejected**

Accepted data meet the minimum requirements for the following EPA data category:
_____ **ERS Screening**
_____ **Non-definitive with 10 % Conformation by Definitive Methodology**
_____ **Definitive, Comprehensive Statistical Error Determination was performed.**
__X__ **Definitive, Comprehensive Statistical Error Determination was not performed.**

Any qualifications to individual sample analysis results are detailed in the appropriate section above or appear under the comments section below. In cases where several QC criteria are out of specification, it may be appropriate to further qualify the data usability. The data reviewer must use professional judgment and express concerns and comments on the data validity for each specific data package.

Comments: None.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	**Location: Oakland, CA**
Project TDD Number: 09-9611-0016	**PAN: 09-0125-DCRS-XX**

11. USABILITY OF DATA

A. These data are considered usable for the following the data use objectives stated in the DC Metals Site Quality Assurance Sampling Plan (QASP).

The following data use objectives were indicated in the QASP:
1. To establish the initial and continuing groundwater quality, and to determine whether the treatment system is improving the groundwater quality.

2. To determine when clean-up goals have been met.

No results were qualified as estimated, nondetected, or rejected. Because there is a low probability that false negatives or false positives could be reported, the data are usable for the purposes indicated above.

B. These data meet quality objectives stated in the QASP.
As indicated in Section 3.0 of the QASP, the sample analyses used to document monitoring well groundwater quality will require fully validatable data packages and data in the "definitive" category. The data in this package meet these requirements.

Attached are copies of all data summary sheets and a copy of the chain of custody for the samples.

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

CHAIN OF CUSTODY RECORD

137223

75 Hawthorne Street
San Francisco, California 94105

PROJ. NO.: 0125DCTA
PROJECT NAME: DC Metals
SAMPLERS: (Signature) C. McLeod, Lisa Sutherland

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	8240/8260	8270	CAM17 by 6010	MS/MSD	REMARKS
	12/17/98	1015		✓	MW11-121798	3x40ml	✓				
		"		✓	"	2x1L		✓			
		"		✓	"	1x1L			✓		
		0715		✓	GW MW12-121798	6x40ml	✓			✓	Probable High Concentration
2		"		✓	"	3x1L		✓		✓	
		"		✓	"	2x1L			✓	✓	
		1350		✓	NW GW13-121798	3x40ml	✓				
		"		✓	"	2x1L		✓			Known High Concentration
3		"		✓	"	1x1L			✓		
		1040		✓	MW14-121798	3x40ml	✓				
		"		✓	"	2x1L		✓			Known High Concentration
4		"		✓	"	1x1L			✓		
		1400		✓	MW130-121798	3x40ml	✓				
		"		✓	"	2x1L		✓			Known High Concentration
5		"		✓	"	1x1L			✓		

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
CMcleod	12/10/98 1246	12/18/98 2:46			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

9 25030

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

CHAIN OF CUSTODY RECORD

13723

75 Hawthorne Street
San Francisco, California 94105

PROJ. NO.	PROJECT NAME
0125DCTA	PC Metals

SAMPLERS: (Signature)
C. Mchead Lisa Sutherland

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	8240/8260	8270	CAM17 by 6010				REMARKS
	12/7/98	1445		✓	MWB-121798	3x40ml	✓						
	"	"		✓	"	1 x 1L		✓					
	"	"		✓	"	1 x 1L			✓				

Standard t-a-t (15 days)
Data validation package (30 days)

Fax results to:
Cindy Mchead
(415) 981 0801

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
CMchead	12/10/98 1246	12/10/98 1246			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
				Ecology & Environment	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

9 25031

Curtis & Tompkins, Ltd.

SAMPLE ID: MW11-121798
LAB ID: 137223-001
CLIENT: Ecology & Environment
PROJECT ID: 0125DCTAXX
LOCATION: DC Metals
MATRIX: Water

DATE SAMPLED: 12/17/98
DATE RECEIVED: 12/18/98
DATE REPORTED: 01/11/99

California TITLE 26 Metals

Compound	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
Antimony	ND	60	1	45475	EPA 6010A	01/07/99
Arsenic	45	5.0	1	45475	EPA 6010A	01/07/99
Barium	160	10	1	45475	EPA 6010A	01/07/99
Beryllium	ND	2.0	1	45475	EPA 6010A	01/07/99
Cadmium	ND	5.0	1	45475	EPA 6010A	01/07/99
Chromium (total)	72	10	1	45475	EPA 6010A	01/07/99
Cobalt	ND	20	1	45475	EPA 6010A	01/07/99
Copper	35	10	1	45475	EPA 6010A	01/07/99
Lead	6.5	3.0	1	45475	EPA 6010A	01/07/99
Mercury	ND	0.20	1	45528	EPA 7470	12/31/98
Molybdenum	ND	20	1	45475	EPA 6010A	01/07/99
Nickel	120	20	1	45475	EPA 6010A	01/07/99
Selenium	ND	5.0	1	45475	EPA 6010A	01/07/99
Silver	ND	5.0	1	45475	EPA 6010A	01/07/99
Thallium	43	5.0	1	45475	EPA 6010A	01/07/99
Vanadium	62	10	1	45475	EPA 6010A	01/07/99
Zinc	96	20	1	45475	EPA 6010A	01/07/99

ND = Not detected at or above reporting limit

EQL 1/25/99

Curtis & Tompkins, Ltd.

SAMPLE ID: GW12-121798
LAB ID: 137223-002
CLIENT: Ecology & Environment
PROJECT ID: 0125DCTAXX
LOCATION: DC Metals
MATRIX: Water

DATE SAMPLED: 12/17/98
DATE RECEIVED: 12/18/98
DATE REPORTED: 01/11/99

California TITLE 26 Metals

Compound	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
Antimony	ND	60	1	45475	EPA 6010A	01/07/9
Arsenic	52	5.0	1	45475	EPA 6010A	01/07/9
Barium	460	10	1	45475	EPA 6010A	01/07/9
Beryllium	ND	2.0	1	45475	EPA 6010A	01/07/9
Cadmium	ND	5.0	1	45475	EPA 6010A	01/07/9
Chromium (total)	79	10	1	45475	EPA 6010A	01/07/9
Cobalt	ND	20	1	45475	EPA 6010A	01/07/9
Copper	40	10	1	45475	EPA 6010A	01/07/9
Lead	15	3.0	1	45475	EPA 6010A	01/07/9
Mercury	ND	0.20	1	45528	EPA 7470	12/31/9
Molybdenum	ND	20	1	45475	EPA 6010A	01/07/9
Nickel	150	20	1	45475	EPA 6010A	01/07/9
Selenium	ND	5.0	1	45475	EPA 6010A	01/07/9
Silver	ND	5.0	1	45475	EPA 6010A	01/07/9
Thallium	12	5.0	1	45475	EPA 6010A	01/07/9
Vanadium	62	10	1	45475	EPA 6010A	01/07/9
Zinc	160	20	1	45475	EPA 6010A	01/07/9

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.

SAMPLE ID: MW13-121798
LAB ID: 137223-003
CLIENT: Ecology & Environment
PROJECT ID: 0125DCTAXX
LOCATION: DC Metals
MATRIX: Water

DATE SAMPLED: 12/17/98
DATE RECEIVED: 12/18/98
DATE REPORTED: 01/11/99

California TITLE 26 Metals

Compound	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
Antimony	ND	60	1	45475	EPA 6010A	01/07/99
Arsenic	48	5.0	1	45475	EPA 6010A	01/07/99
Barium	950	10	1	45475	EPA 6010A	01/07/99
Beryllium	ND	2.0	1	45475	EPA 6010A	01/07/99
Cadmium	ND	5.0	1	45475	EPA 6010A	01/07/99
Chromium (total)	92	10	1	45475	EPA 6010A	01/07/99
Cobalt	ND	20	1	45475	EPA 6010A	01/07/99
Copper	54	10	1	45475	EPA 6010A	01/07/99
Lead	43	3.0	1	45475	EPA 6010A	01/07/99
Mercury	ND	0.20	1	45528	EPA 7470	12/31/98
Molybdenum	ND	20	1	45475	EPA 6010A	01/07/99
Nickel	230	20	1	45475	EPA 6010A	01/07/99
Selenium	ND	5.0	1	45475	EPA 6010A	01/07/99
Silver	ND	5.0	1	45475	EPA 6010A	01/07/99
Thallium	22	5.0	1	45475	EPA 6010A	01/07/99
Vanadium	75	10	1	45475	EPA 6010A	01/07/99
Zinc	330	20	1	45475	EPA 6010A	01/07/99

ND = Not detected at or above reporting limit

1/12/99

Curtis & Tompkins, Ltd.

SAMPLE ID: MW14-121798
LAB ID: 137223-004
CLIENT: Ecology & Environment
PROJECT ID: 0125DCTAXX
LOCATION: DC Metals
MATRIX: Water

DATE SAMPLED: 12/17/98
DATE RECEIVED: 12/18/98
DATE REPORTED: 01/11/99

California TITLE 26 Metals

Compound	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
Antimony	ND	60	1	45475	EPA 6010A	01/07/9
Arsenic	130	5.0	1	45475	EPA 6010A	01/07/9
Barium	930	10	1	45475	EPA 6010A	01/07/9
Beryllium	ND	2.0	1	45475	EPA 6010A	01/07/9
Cadmium	ND	5.0	1	45475	EPA 6010A	01/07/9
Chromium (total)	1100	10	1	45475	EPA 6010A	01/07/9
Cobalt	ND	20	1	45475	EPA 6010A	01/07/9
Copper	87	10	1	45475	EPA 6010A	01/07/9
Lead	92	3.0	1	45475	EPA 6010A	01/07/9
Mercury	2.0	0.20	1	45528	EPA 7470	12/31/9
Molybdenum	ND	20	1	45475	EPA 6010A	01/07/9
Nickel	170	20	1	45475	EPA 6010A	01/07/9
Selenium	ND	5.0	1	45475	EPA 6010A	01/07/9
Silver	ND	5.0	1	45475	EPA 6010A	01/07/9
Thallium	26	5.0	1	45475	EPA 6010A	01/07/9
Vanadium	56	10	1	45475	EPA 6010A	01/07/9
Zinc	520	20	1	45475	EPA 6010A	01/07/9

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.

SAMPLE ID: MW130-121798
LAB ID: 137223-005
CLIENT: Ecology & Environment
PROJECT ID: 0125DCTAXX
LOCATION: DC Metals
MATRIX: Water

DATE SAMPLED: 12/17/98
DATE RECEIVED: 12/18/98
DATE REPORTED: 01/11/99

California TITLE 26 Metals

Compound	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
Antimony	ND	60	1	45475	EPA 6010A	01/07/99
Arsenic	50	5.0	1	45475	EPA 6010A	01/07/99
Barium	960	10	1	45475	EPA 6010A	01/07/99
Beryllium	ND	2.0	1	45475	EPA 6010A	01/07/99
Cadmium	ND	5.0	1	45475	EPA 6010A	01/07/99
Chromium (total)	93	10	1	45475	EPA 6010A	01/07/99
Cobalt	ND	20	1	45475	EPA 6010A	01/07/99
Copper	52	10	1	45475	EPA 6010A	01/07/99
Lead	39	3.0	1	45475	EPA 6010A	01/07/99
Mercury	ND	0.20	1	45528	EPA 7470	12/31/98
Molybdenum	ND	20	1	45475	EPA 6010A	01/07/99
Nickel	230	20	1	45475	EPA 6010A	01/07/99
Selenium	ND	5.0	1	45475	EPA 6010A	01/07/99
Silver	ND	5.0	1	45475	EPA 6010A	01/07/99
Thallium	35	5.0	1	45475	EPA 6010A	01/07/99
Vanadium	76	10	1	45475	EPA 6010A	01/07/99
Zinc	430	20	1	45475	EPA 6010A	01/07/99

ND = Not detected at or above reporting limit

1/25/99

Curtis & Tompkins, Ltd.

SAMPLE ID: MWB-121798
LAB ID: 137223-006
CLIENT: Ecology & Environment
PROJECT ID: 0125DCTAXX
LOCATION: DC Metals
MATRIX: Water

DATE SAMPLED: 12/17/98
DATE RECEIVED: 12/18/98
DATE REPORTED: 01/11/99

California TITLE 26 Metals

Compound	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
Antimony	ND	60	1	45475	EPA 6010A	01/07/99
Arsenic	ND	5.0	1	45475	EPA 6010A	01/07/99
Barium	ND	10	1	45475	EPA 6010A	01/07/99
Beryllium	ND	2.0	1	45475	EPA 6010A	01/07/99
Cadmium	ND	5.0	1	45475	EPA 6010A	01/07/99
Chromium (total)	ND	10	1	45475	EPA 6010A	01/07/99
Cobalt	ND	20	1	45475	EPA 6010A	01/07/99
Copper	ND	10	1	45475	EPA 6010A	01/07/99
Lead	ND	3.0	1	45475	EPA 6010A	01/07/99
Mercury	ND	0.20	1	45528	EPA 7470	12/31/98
Molybdenum	ND	20	1	45475	EPA 6010A	01/07/99
Nickel	ND	20	1	45475	EPA 6010A	01/07/99
Selenium	ND	5.0	1	45475	EPA 6010A	01/07/99
Silver	ND	5.0	1	45475	EPA 6010A	01/07/99
Thallium	ND	5.0	1	45475	EPA 6010A	01/07/99
Vanadium	ND	10	1	45475	EPA 6010A	01/07/99
Zinc	ND	20	1	45475	EPA 6010A	01/07/99

ND = Not detected at or above reporting limit

1/25/99

DATA SUMMARIES

Sample Marix: Groundwater
Analysis: Volatile Organic Compounds by 8260B
Sample Date(s): 4/27/00
Laboratory: Curtis and Tompkins, Ltd.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, California
Project TDD Number: 09-97-12-0005	PAN: 09-0256-DCST-XX
Laboratory: Curtis & Tompkins, LTD.	Lab Project Number: 145315
Sampling Dates: 04/26-28/00	Sample Matrix: Water
Analytical Method: *GC-MS (EPA 8260B)*	Data Reviewer: Mindy Song

REVIEW AND APPROVAL:

Data Reviewer: Mindy C. Song Date: 6/12/00

Technical QA Reviewer: _____ Date: _____

Project Manager: _____ Date: 6/15/00

SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	GW-113-20	145315-001
2	GW-113-25	145315-002
3	GW-113-30	145315-003
4	GW-113-35	145315-004
5	GW-113-40	145315-005
6	GW-11-4-00	145315-006
7	GW-114-20	145315-007
8	GW-114-25	145315-008
9	GW-114-30	145315-009
10	GW-114-35	145315-010
11	GW-114-40	145315-011
12	MW14-4-00	145315-012
13	MW13-4-00	145315-013
14	MW15-4-00	145315-014
15	MW16-4-00	145315-015
16	GW-116-20	145315-016
17	GW-116-30	145315-017
18	GW-116-34	145315-018
19	GW-115-30	145315-019
20		

Groundwater Monitoring Wells

Groundwater Monitoring Wells

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, California
Project TDD Number: 09-97-12-0005	PAN: 09-0256-DCST-XX

DATA PACKAGE COMPLETENESS CHECKLIST:

Checklist Code:

- X — Included: no problems
- * — Included: problems noted in review
- O — Not Included and/or Not Available
- NR — Not Required
- RS — Provided As Re-submission

Case Narrative:

- X — Case Narrative present

Quality Control Summary Package:

- X — Data Summary sheets
- X — Matrix Spike/Spike Duplicate Recoveries
- X — Laboratory Control Sample Recoveries
- X — Method Blank Summaries
- X — GC/MS Tuning and Mass Calibration
- X — Initial Calibration Data
- X — Continuing Calibration Data
- X — Surrogate Compound Recovery Summary
- X — Internal Standard Area Summary

Sample and Blank Data Package Section

- X — Reconstructed Ion Current (RIC) Chromatogram
- X — Quantitation Reports
- X — Raw and Enhanced Mass Spectra
- X — Reference Mass Spectra for Target Compounds
- X — Mass Spectral Library Search for TICs

Raw QC Data Package Section

- X — DFTPP and/or BFB mass spectra and mass listings
- X — RIC Chromatogram for Standards, LCS, and MS/MSD
- X — Quantitation Reports for Standards, LCS, and MS/MSD
- NR — List of Instrument Detection Limits
- X — Chain-of-Custody Records
- X — Sample Preparation and Analysis Run Logs

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, California
Project TDD Number: 09-97-12-0005	PAN: 09-0256-DCST-XX

DATA VALIDATION SUMMARY

The data were reviewed following procedures and limits specified in the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004, OSWER Directive 9360.4-01, dated April 1990).

Indicate with a YES or NO whether each item is acceptable:

1	**Holding Times**	YES
2	**GC/MS Tuning Criteria**	YES
3	**Initial Calibrations**	YES
4	**Continuing Calibrations**	YES
5	**Laboratory Control Sample**	YES
6	**Matrix Spike/Matrix Spike Duplicate**	YES
7	**Blanks and Background Samples**	YES
8	**Surrogate Compounds**	YES
9	**Internal Standards**	YES
10	**Duplicate Analyses**	YES
11	**Analyte Identification**	YES
12	**Analyte Quantitation**	YES
13	**Overall Assessment of Data**	YES
14	**Usability of Data**	YES

Comments: Nineteen water samples were delivered to the laboratory for volatile organic compounds including MTBE by EPA 8260B on April 28, 2000.
The water samples were analyzed by two different instruments (MSVOA05 &MSVOA06) and fourteen samples were analyzed with dilution and reported due to high concentration of target analyte compounds.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, California
Project TDD Number: 09-97-12-0005	PAN: 09-0256-DCST-XX

1. HOLDING TIMES

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Samples were extracted and analyzed within required holding times except as noted under Comments. In addition, no problems were identified with regard to sample preservation or custody unless specified. For those samples analyzed outside holding time requirements, the detected results have been qualified as estimated (J), and the nondetected results have been qualified either as estimated (UJ) or rejected (R) based on the reviewer's judgement.

Water Samples:
EPA 8260B: 14 days (from collection) for analysis.
EPA 8270C: 7 days (from collection) for extraction; 40 days (from extraction) for analysis.
Soil or Other Matrices:
EPA 8260B: 14 days (from collection) for analysis.
EPA 8270C:14 days (from collection) for extraction;40 days (from extraction) for analysis.

Comments: The water samples were analyzed 4 to 7 days from the time of collection.

2. GC/MS INSTRUMENT PERFORMANCE CRITERIA

__X__ **BFB (EPA 8260B) or DFTPP (EPA 8270C) has been run for every 12 hours of sample analysis per instrument.**

__X__ **The BFB or DFTPP ion abundance criteria indicated in EPA/540/G-90/004 have been met for each instrument.**

Comments: None.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, California
Project TDD Number: 09-97-12-0005	PAN: 09-0256-DCST-XX

3. INITIAL CALIBRATIONS

__X__ **Acceptable**
_____ **Acceptable with qualification**
_____ **Unacceptable**

Unless flagged below, a 5-point initial calibration was run. In addition, average Relative Response Factor (RRF), and percent relative Standard Deviation (%RSD) values were within control limits (average RRF >= 0.05; %RSD <= 30). For analytes which exceeded the %RSD control limit, associated detected results are qualified as estimated (J). If the low calibration level was not detected, the nondetected results are qualified (UJ). For analytes which exceeded the RRF control limit, associated detected results are qualified as estimated (J) and the nondetected results are qualified as rejected (R).

Comments: The linear regression was used for Chloromethane, Chloroethane, Chloroform and Hexachlorobutadiene, Vinyl chloride and 1,2-Dibromo-3-chloropropane in ICAL from Instrument MSVOA05.

4. CONTINUING CALIBRATIONS

__X__ **Acceptable**
_____ **Acceptable with qualification**
_____ **Unacceptable**

Unless flagged below, continuing calibrations were performed at the beginning and at the end of any group of samples and at least every 12 hours. In addition, Percent Difference (%D) values were within the control limit (%D <= 25). For analytes which exceeded the %D control limit, associated detected results are qualified as estimated (J). In cases where the %D is very high and indicates a severe loss of instrument sensitivity, the associated nondetected results may be qualified as estimated (UJ) or rejected (R) based on the professional judgement of the reviewer.

Comments: Percent difference of 2-Hexanone and Cyclohexanone in CCVs (file ID: ee103 & EE112), MTBE and 4-Methyl-2-pentanone in CCV (file ID:ee204), Bromomethane and Cyclohexanone in CCV (file ID:fe302) and Bromomethane, Carbon disulfide, Cyclohexanone and Naphathalene in CCV (file ID:fe315) were outside of control limit. Naphthalene result was qualified as estimated for sample MW14-4-00.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, California
Project TDD Number: 09-97-12-0005	PAN: 09-0256-DCST-XX

5. LABORATORY CONTROL SAMPLE

__X__ **Acceptable**
_____ **Acceptable with qualification**
_____ **Unacceptable**
_____ **No Laboratory Control Samples Analyzed**

Laboratory control sample recoveries are used for a qualitative indication of accuracy (bias) independent of matrix effects. Spike recovery limits of 80% to 120% are specified in EPA/540/G-90/004. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). At the discretion of the reviewer, other limits may be used only if justification can be provided.

Comments: All recoveries were within the control limits.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

__X__ **Acceptable**
_____ **Acceptable with qualification**
_____ **Unacceptable**
_____ **No Matrix Spike/Matrix Spike Duplicates Analyzed**

Matrix spike and matrix spike duplicate recoveries are used for a qualitative indication of accuracy (bias) due to matrix effects. The RPD between the recoveries is used for a qualitative indication of precision. Spike recovery limits of 80% to 120% are specified in EPA/540/G-90/004. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). At the discretion of the reviewer, other limits may be used only if justification can be provided.

Comments: Sample GW-11-4-00 was used for matrix spike and matrix spike duplicate and all recoveries were within the control limit.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, California
Project TDD Number: 09-97-12-0005	PAN: 09-0256-DCST-XX

7. BLANKS AND BACKGROUND SAMPLES

__X__ Acceptable
_____ Detection Limits Adjusted

The following blanks were analyzed:
__X__ Method (preparation) Blanks
_____ Field Blanks
_____ Instrument Blanks
_____ Rinsate Blanks
_____ Background Samples
_____ VOA Trip Blanks

Preparation (method) blanks were prepared for each batch of samples extracted. A preparation blank was analyzed after every continuing calibration standard, prior to sample analysis unless noted below. Any compound detected in the sample and also detected in any associated blank, must be qualified as non-detect (U) when the sample concentration is less than 5x the blank concentration.

Comments: No contamination was found in the method blank.

8. SURROGATE COMPOUNDS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Surrogate compound recoveries for samples analyzed within a sample group must be within the limits specified in the method. If the surrogate recovery is between 10% and the lower limit, the associated detected results are qualified as estimated (J) and the nondetected results are qualified as estimated (UJ). If the surrogate recovery is <10%, the associated detected results are qualified as estimated (J) and the nondetected results are rejected (R). If the surrogate recovery is above the upper limit, the associated detected results are qualified as estimated (J). Surrogate recoveries which exceeded these limits are noted below and the associated results are qualified on the attached sample report forms.

Comments: All surrogate recoveries were within the control limits.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, California
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9. INTERNAL STANDARDS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Internal Standard area counts for samples analyzed within a sample group must be within the range of 50% to 200% of the internal standard area for the continuing calibration. If the internal standard area is between 10% and 50% of this value, the associated detected results are qualified as estimated (J) and the nondetected results are qualified as estimated (UJ). If the internal standard area is <10% of the calibration area, both the detected and nondetected results are rejected (R). If the internal standard area is >200% of the calibration area, the associated detected results are qualified as estimated (J). Internal standards which exceeded these limits are noted below and the associated results are qualified on the attached sample report forms.

Comment: None.

10. DUPLICATE ANALYSES

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Duplicates Analyzed

Type of duplicates analyzed:
_____ Field Duplicates
__X__ Laboratory Duplicates

Calculate the relative Percent Difference (RPD) between the members of duplicate pairs using the equation indicated below. Qualify the results as estimated (J) for any analyte whose RPD exceeds that specified in the Sampling and Analysis Plan.

$$RPD = \frac{2(Value\ 1 - Value\ 2)}{Value\ 1 + Value\ 2} \times 100\%$$

Comments: RPD's of MS/MSD< 50%.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, California
Project TDD Number: 09-97-12-0005	PAN: 09-0256-DCST-XX

11. ANALYTE IDENTIFICATION

Evaluate the ion profiles for the sample analytes and compare them to the library ion profiles provided by the laboratory. Note any identifications which are not sufficiently supported by comparison to known ion profiles.

Comments: Analyte identification is acceptable.

12. ANALYTE QUANTITATION

Confirm that analyte quantitation was performed correctly using the following formulas:

EPA 8260B, water samples:

$$\text{ug/L} = \frac{\text{(analyte area)(amount of internal standard, ng)}}{\text{(internal standard area)(RF)(volume of water purged, mL)}}$$

EPA 8260B, soil samples:

$$\text{ug/kg} = \frac{\text{(analyte area)(amount of internal standard, ng)}}{\text{(internal standard area)(RF)(weight of soil extracted, g)(fraction solids)}}$$

EPA 8270C, water samples:

$$\text{ug/L} = \frac{\text{(analyte area)(amount of internal standard, ng)(total volume of extract, uL)}}{\text{(internal standard area)(RF)(volume of sample extracted, mL)(injection volume, uL)}}$$

EPA 8270C, soil samples:

$$\text{ug/kg} = \frac{\text{(analyte area)(amount of internal standard, ng)(total volume of extract, uL)}}{\text{(internal standard area)(RF)(weight of sample extracted, g)(fraction solids)(injection volume, uL)}}$$

Comments: Analyte quantitation is acceptable.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, California
Project TDD Number: 09-97-12-0005	PAN: 09-0256-DCST-XX

13. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the overall data usability for the specified level.

__X__ **Acceptable**
_____ **Acceptable with Qualification**
_____ **Rejected**

Accepted data meet the minimum requirements for the following EPA data category:
_____ **ERS Screening**
_____ **Non-definitive with 10 % Conformation by Definitive Methodology**
_____ ***Definitive, Comprehensive Statistical Error Determination was performed.***
__X__ **Definitive, Comprehensive Statistical Error Determination was not performed.**

Any qualifications to individual sample analysis results are detailed in the appropriate section above or appear under the comments section below. In cases where several QC criteria are out of specification, it may be appropriate to further qualify the data usability. The data reviewer must use professional judgment and express concerns and comments on the data validity for each specific data package.

Comments: Data as reported is valid.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, California
Project TDD Number: 09-97-12-0005	PAN: 09-0256-DCST-XX

14. USABILITY OF DATA

A. These data are considered usable for the following the data use objectives stated in the *DC METALS SITE, OAKLAND, CALIFORNIA, FIELD SAMPLING PLAN AND QUALITY ASSURANCE PROJECT PLAN (SAP), AUGUST 1999.*

The following data use objectives were indicated in the *SAP:*

TO DETERMINE WHETHER AIR EXHAUST SYSTEMS SHOULD BE INSTALLED IN RESIDENTIAL CRAWLSPACES.

TO DETERMINE THE VOLUME OF SOIL THAT NEEDS TO BE ADDRESSED FOR REMOVAL AND/OR REMEDIATION.

TO PROVIDE INITIAL DATA NECESSARY TO BEGIN A HAZARD RANKING SYSTEM PACKAGE FOR THE SITE.

TO DETERMINE WHETHER FURTHER SITE CHARACTERIZATION IS NECESSARY.

THE DATA ARE USABLE FOR THE ABOVE OBJECTIVES.

B. These data meet quality objectives stated in the *SAP.*

AS INDICATED IN SECTION 3.5.2 OF THE SAP, THE INVESTIGATION WILL GENERATE DEFINITIVE DATA AND TABLE 3-2 OF THE SAP OUTLINES THE DATA QUALITY INDICATOR GOALS APPLICABLE TO THE DEFINITIVE DATA QUALITY LEVEL. THE DATA IN THIS PACKAGE MEET THESE REQUIREMENTS.

15. DOCUMENTATION OF LABORATORY CORRECTIVE

Problem: No problems requiring corrective action were found.

Resolution: Not required.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, California
Project TDD Number: 09-97-12-0005	PAN: 09-0256-DCST-XX

APPENDIX A. ANNOTATED DATA SUMMARY SHEETS

Attached are copies of all data summary sheets, with data qualifiers indicated (hand-annotated), and a copy of the chains of custody for the samples.

When appropriate, the practical quantitation limits have been adjusted to reflect the qualifications noted during the data validation. Errors in the reporting of detected results will not usually be changed by hand. In these cases, the laboratory may be required to re-submit the affected data summary sheets and any associated portions of the data package.

The following data validation qualifiers may be used in this review. Their definitions are taken from the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004, OSWER Directive 9360.4-01, dated April 1990).

J The associated numerical value is an estimated quantity because the reported concentrations were less than the required practical quantitation limits or because quality control criteria were not met.

R The sample results are rejected (analyte may or may not be present) due to gross deficiencies in quality control criteria. Any reported value is unusable. Resampling and/or reanalysis is necessary for verification.

U The material was analyzed for, but not detected. The associated numerical value is the sample practical quantitation limit or adjusted sample practical quantitation limit.

UJ The material was analyzed for, but not detected. The reported practical quantitation limit is estimated because quality control criteria were not met.

NJ Presumptive evidence of the presence of the material (tentatively identified compound) at an estimated quantity.

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	145315	Location:	DC Metals
Client:	Ecology & Environment	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	MW GW-11-4-00	Batch#:	55514
Lab ID:	145315-006	Sampled:	04/27/00
Matrix:	Water	Received:	04/28/00
Units:	ug/L	Analyzed:	05/02/00
Diln Fac:	100.0		

Analyte	Result	RL
Freon 12	ND	1,000
Chloromethane	ND	1,000
Vinyl Chloride	1,700	1,000
Bromomethane	ND	1,000
Chloroethane	ND	1,000
Trichlorofluoromethane	ND	500
Acetone	ND	2,000
Freon 113	ND	500
1,1-Dichloroethene	ND	500
Methylene Chloride	ND	2,000
Carbon Disulfide	ND	500
MTBE	ND	500
trans-1,2-Dichloroethene	ND	500
Vinyl Acetate	ND	5,000
1,1-Dichloroethane	500	500
2-Butanone	ND	1,000
cis-1,2-Dichloroethene	18,000	500
2,2-Dichloropropane	ND	500
Chloroform	ND	500
Bromochloromethane	ND	1,000
1,1,1-Trichloroethane	880	500
1,1-Dichloropropene	ND	500
Carbon Tetrachloride	ND	500
1,2-Dichloroethane	ND	500
Benzene	ND	500
Trichloroethene	ND	500
1,2-Dichloropropane	ND	500
Bromodichloromethane	ND	500
Dibromomethane	ND	500
4-Methyl-2-Pentanone	ND	1,000
cis-1,3-Dichloropropene	ND	500
Toluene	6,600	500
trans-1,3-Dichloropropene	ND	500
1,1,2-Trichloroethane	ND	500
2-Hexanone	ND	1,000
1,3-Dichloropropane	ND	500
Tetrachloroethene	ND	500

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	145315	Location:	DC Metals
Client:	Ecology & Environment	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	GW-11-4-00	Batch#:	55514
Lab ID:	145315-006	Sampled:	04/27/00
Matrix:	Water	Received:	04/28/00
Units:	ug/L	Analyzed:	05/02/00
Diln Fac:	100.0		

Analyte	Result	RL
Dibromochloromethane	ND	500
1,2-Dibromoethane	ND	500
Chlorobenzene	ND	500
1,1,1,2-Tetrachloroethane	ND	500
Ethylbenzene	ND	500
m,p-Xylenes	ND	500
o-Xylene	ND	500
Styrene	ND	500
Bromoform	ND	500
Isopropylbenzene	ND	500
1,1,2,2-Tetrachloroethane	ND	500
1,2,3-Trichloropropane	ND	500
Propylbenzene	ND	500
Bromobenzene	ND	500
1,3,5-Trimethylbenzene	ND	500
2-Chlorotoluene	ND	500
4-Chlorotoluene	ND	500
tert-Butylbenzene	ND	500
1,2,4-Trimethylbenzene	ND	500
sec-Butylbenzene	ND	500
para-Isopropyl Toluene	ND	500
1,3-Dichlorobenzene	ND	500
1,4-Dichlorobenzene	ND	500
n-Butylbenzene	ND	500
1,2-Dichlorobenzene	ND	500
1,2-Dibromo-3-Chloropropane	ND	500
1,2,4-Trichlorobenzene	ND	500
Hexachlorobutadiene	ND	500
Naphthalene	ND	500
1,2,3-Trichlorobenzene	ND	500

Surrogate	%REC	Limits
Dibromofluoromethane	120	80-122
1,2-Dichloroethane-d4	106	78-123
Toluene-d8	99	80-110
Bromofluorobenzene	93	80-115

ND = Not Detected
RL = Reporting Limit

6/12/00

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Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	145315	Location:	DC Metals
Client:	Ecology & Environment	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	MW14-4-00	Batch#:	55553
Lab ID:	145315-012	Sampled:	04/27/00
Matrix:	Water	Received:	04/28/00
Units:	ug/L	Analyzed:	05/03/00
Diln Fac:	1.250		

Analyte	Result	RL
Freon 12	ND	13,000
Chloromethane	ND	13,000
Vinyl Chloride	ND	13,000
Bromomethane	ND	13,000
Chloroethane	ND	13,000
Trichlorofluoromethane	ND	6,300
Acetone	ND	25,000
Freon 113	ND	6,300
1,1-Dichloroethene	ND	6,300
Methylene Chloride	48,000	25,000
Carbon Disulfide	ND	6,300
MTBE	ND	6,300
trans-1,2-Dichloroethene	ND	6,300
Vinyl Acetate	ND	63,000
1,1-Dichloroethane	12,000	6,300
2-Butanone	ND	13,000
cis-1,2-Dichloroethene	130,000	6,300
2,2-Dichloropropane	ND	6,300
Chloroform	ND	6,300
Bromochloromethane	ND	13,000
1,1,1-Trichloroethane	5,600 J	6,300
1,1-Dichloropropene	ND	6,300
Carbon Tetrachloride	ND	6,300
1,2-Dichloroethane	ND	6,300
Benzene	ND	6,300
Trichloroethene	150,000	6,300
1,2-Dichloropropane	ND	6,300
Bromodichloromethane	ND	6,300
Dibromomethane	ND	6,300
4-Methyl-2-Pentanone	ND	13,000
cis-1,3-Dichloropropene	ND	6,300
Toluene	44,000	6,300
trans-1,3-Dichloropropene	ND	6,300
1,1,2-Trichloroethane	ND	6,300
2-Hexanone	ND	13,000
1,3-Dichloropropane	ND	6,300
Tetrachloroethene	ND	6,300
Dibromochloromethane	ND	6,300
1,2-Dibromoethane	ND	6,300
Chlorobenzene	ND	6,300
1,1,1,2-Tetrachloroethane	ND	6,300
Ethylbenzene	ND	6,300
m,p-Xylenes	3,600 J	6,300
o-Xylene	ND	6,300
Styrene	ND	6,300
Bromoform	ND	6,300
Isopropylbenzene	ND	6,300
1,1,2,2-Tetrachloroethane	ND	6,300
1,2,3-Trichloropropane	ND	6,300
Propylbenzene	ND	6,300
Bromobenzene	ND	6,300
1,3,5-Trimethylbenzene	ND	6,300
2-Chlorotoluene	ND	6,300
4-Chlorotoluene	ND	6,300

J = Estimated value
ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	145315	Location:	DC Metals
Client:	Ecology & Environment	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	MW14-4-00	Batch#:	55553
Lab ID:	145315-012	Sampled:	04/27/00
Matrix:	Water	Received:	04/28/00
Units:	ug/L	Analyzed:	05/03/00
Diln Fac:	1.250		

Analyte	Result	RL
tert-Butylbenzene	ND	6,300
1,2,4-Trimethylbenzene	9,300	6,300
sec-Butylbenzene	ND	6,300
para-Isopropyl Toluene	ND	6,300
1,3-Dichlorobenzene	ND	6,300
1,4-Dichlorobenzene	ND	6,300
n-Butylbenzene	ND	6,300
1,2-Dichlorobenzene	ND	6,300
1,2-Dibromo-3-Chloropropane	ND	6,300
1,2,4-Trichlorobenzene	ND	6,300
Hexachlorobutadiene	ND	6,300
Naphthalene	9,100 J MS 6/12/00	6,300
1,2,3-Trichlorobenzene	ND	6,300

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-122
1,2-Dichloroethane-d4	108	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	101	80-115

6/12/00

J = Estimated value
ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	145315	Location:	DC Metals
Client:	Ecology & Environment	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	MW13-4-00	Batch#:	55482
Lab ID:	145315-013	Sampled:	04/27/00
Matrix:	Water	Received:	04/28/00
Units:	ug/L	Analyzed:	05/02/00
Diln Fac:	625.0		

Analyte	Result	RL
Freon 12	ND	6,300
Chloromethane	ND	6,300
Vinyl Chloride	20,000	6,300
Bromomethane	ND	6,300
Chloroethane	ND	6,300
Trichlorofluoromethane	ND	3,100
Acetone	27,000	13,000
Freon 113	ND	3,100
1,1-Dichloroethene	ND	3,100
Methylene Chloride	ND	13,000
Carbon Disulfide	ND	3,100
MTBE	ND	3,100
trans-1,2-Dichloroethene	ND	3,100
Vinyl Acetate	ND	31,000
1,1-Dichloroethane	1,700 J	3,100
2-Butanone	88,000	6,300
cis-1,2-Dichloroethene	2,400 J	3,100
2,2-Dichloropropane	ND	3,100
Chloroform	ND	3,100
Bromochloromethane	ND	6,300
1,1,1-Trichloroethane	ND	3,100
1,1-Dichloropropene	ND	3,100
Carbon Tetrachloride	ND	3,100
1,2-Dichloroethane	ND	3,100
Benzene	ND	3,100
Trichloroethene	ND	3,100
1,2-Dichloropropane	ND	3,100
Bromodichloromethane	ND	3,100
Dibromomethane	ND	3,100
4-Methyl-2-Pentanone	79,000	6,300
cis-1,3-Dichloropropene	ND	3,100
Toluene	37,000	3,100
trans-1,3-Dichloropropene	ND	3,100
1,1,2-Trichloroethane	ND	3,100
2-Hexanone	ND	6,300
1,3-Dichloropropane	ND	3,100
Tetrachloroethene	ND	3,100
Dibromochloromethane	ND	3,100
1,2-Dibromoethane	ND	3,100
Chlorobenzene	ND	3,100
1,1,1,2-Tetrachloroethane	ND	3,100
Ethylbenzene	ND	3,100
m,p-Xylenes	2,000 J	3,100
o-Xylene	ND	3,100
Styrene	ND	3,100
Bromoform	ND	3,100
Isopropylbenzene	ND	3,100
1,1,2,2-Tetrachloroethane	ND	3,100
1,2,3-Trichloropropane	ND	3,100
Propylbenzene	ND	3,100
Bromobenzene	ND	3,100
1,3,5-Trimethylbenzene	ND	3,100
2-Chlorotoluene	ND	3,100
4-Chlorotoluene	ND	3,100

J = Estimated value
ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	145315	Location:	DC Metals
Client:	Ecology & Environment	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	MW13-4-00	Batch#:	55482
Lab ID:	145315-013	Sampled:	04/27/00
Matrix:	Water	Received:	04/28/00
Units:	ug/L	Analyzed:	05/02/00
Diln Fac:	625.0		

Analyte	Result	RL
tert-Butylbenzene	ND	3,100
1,2,4-Trimethylbenzene	ND	3,100
sec-Butylbenzene	ND	3,100
para-Isopropyl Toluene	ND	3,100
1,3-Dichlorobenzene	ND	3,100
1,4-Dichlorobenzene	ND	3,100
n-Butylbenzene	ND	3,100
1,2-Dichlorobenzene	ND	3,100
1,2-Dibromo-3-Chloropropane	ND	3,100
1,2,4-Trichlorobenzene	ND	3,100
Hexachlorobutadiene	ND	3,100
Naphthalene	ND	3,100
1,2,3-Trichlorobenzene	ND	3,100

Surrogate	%REC	Limits
Dibromofluoromethane	119	80-122
1,2-Dichloroethane-d4	105	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	94	80-115

6/12/00

J = Estimated value
ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd

Purgeable Organics by GC/MS

Lab #:	145315	Location:	DC Metals
Client:	Ecology & Environment	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	MW15-4-00	Batch#:	55482
Lab ID:	145315-014	Sampled:	04/27/00
Matrix:	Water	Received:	04/28/00
Units:	ug/L	Analyzed:	05/02/00
Diln Fac:	500.0		

Analyte	Result	RL
Freon 12	ND	5,000
Chloromethane	ND	5,000
Vinyl Chloride	22,000	5,000
Bromomethane	ND	5,000
Chloroethane	ND	5,000
Trichlorofluoromethane	ND	2,500
Acetone	28,000	10,000
Freon 113	ND	2,500
1,1-Dichloroethene	ND	2,500
Methylene Chloride	ND	10,000
Carbon Disulfide	ND	2,500
MTBE	ND	2,500
trans-1,2-Dichloroethene	ND	2,500
Vinyl Acetate	ND	25,000
1,1-Dichloroethane	1,800 J	2,500
2-Butanone	96,000	5,000
cis-1,2-Dichloroethene	2,500 J	2,500
2,2-Dichloropropane	ND	2,500
Chloroform	ND	2,500
Bromochloromethane	ND	5,000
1,1,1-Trichloroethane	ND	2,500
1,1-Dichloropropene	ND	2,500
Carbon Tetrachloride	ND	2,500
1,2-Dichloroethane	ND	2,500
Benzene	ND	2,500
Trichloroethene	ND	2,500
1,2-Dichloropropane	ND	2,500
Bromodichloromethane	ND	2,500
Dibromomethane	ND	2,500
4-Methyl-2-Pentanone	87,000	5,000
cis-1,3-Dichloropropene	ND	2,500
Toluene	42,000	2,500
trans-1,3-Dichloropropene	ND	2,500
1,1,2-Trichloroethane	ND	2,500
2-Hexanone	ND	5,000
1,3-Dichloropropane	ND	2,500
Tetrachloroethene	ND	2,500
Dibromochloromethane	ND	2,500
1,2-Dibromoethane	ND	2,500
Chlorobenzene	ND	2,500
1,1,1,2-Tetrachloroethane	ND	2,500
Ethylbenzene	ND	2,500
m,p-Xylenes	2,400 J	2,500
o-Xylene	ND	2,500
Styrene	ND	2,500
Bromoform	ND	2,500
Isopropylbenzene	ND	2,500
1,1,2,2-Tetrachloroethane	ND	2,500
1,2,3-Trichloropropane	ND	2,500
Propylbenzene	ND	2,500
Bromobenzene	ND	2,500
1,3,5-Trimethylbenzene	ND	2,500
2-Chlorotoluene	ND	2,500
4-Chlorotoluene	ND	2,500

J = Estimated value
ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	145315	Location:	DC Metals
Client:	Ecology & Environment	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	MW15-4-00	Batch#:	55482
Lab ID:	145315-014	Sampled:	04/27/00
Matrix:	Water	Received:	04/28/00
Units:	ug/L	Analyzed:	05/02/00
Diln Fac:	500.0		

Analyte	Result	RL
tert-Butylbenzene	ND	2,500
1,2,4-Trimethylbenzene	ND	2,500
sec-Butylbenzene	ND	2,500
para-Isopropyl Toluene	ND	2,500
1,3-Dichlorobenzene	ND	2,500
1,4-Dichlorobenzene	ND	2,500
n-Butylbenzene	ND	2,500
1,2-Dichlorobenzene	ND	2,500
1,2-Dibromo-3-Chloropropane	ND	2,500
1,2,4-Trichlorobenzene	ND	2,500
Hexachlorobutadiene	ND	2,500
Naphthalene	ND	2,500
1,2,3-Trichlorobenzene	ND	2,500

Surrogate	%REC	Limits
Dibromofluoromethane	121	80-122
1,2-Dichloroethane-d4	106	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	93	80-115

6/12/00

J = Estimated value
ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	145315	Location:	DC Metals
Client:	Ecology & Environment	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	MW16-4-00	Batch#:	55482
Lab ID:	145315-015	Sampled:	04/27/00
Matrix:	Water	Received:	04/28/00
Units:	ug/L	Analyzed:	05/01/00
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	10
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	145315	Location:	DC Metals
Client:	Ecology & Environment	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	MW16-4-00	Batch#:	55482
Lab ID:	145315-015	Sampled:	04/27/00
Matrix:	Water	Received:	04/28/00
Units:	ug/L	Analyzed:	05/01/00
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	5.0
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	114	80-122
1,2-Dichloroethane-d4	101	78-123
Toluene-d8	97	80-110
Bromofluorobenzene	93	80-115

6/12/00

ND = Not Detected
RL = Reporting Limit

DATA SUMMARIES

Sample Marix: Soil Gas
Analysis: Volatile Organics by EPA TO-14
Sample Date(s): 12/16-18/98
Laboratory: Air Toxics, Ltd.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	**Location: Oakland, CA**
Project TDD Number: 09-9611-0016	**PAN: 09-0125-DCRS-XX**
Laboratory: Air Toxics, Ltd.	**Lab Project Number:** 9812340, 9812348, 9812369
Sampling Dates: 12/16/98 - 12/18/98	**Sample Matrix: air**
Analytical Method: EPA TO-14	**Data Reviewer: Edward Long**

REVIEW AND APPROVAL:

Data Reviewer: Edward J. Long **Date:** 2/1/99

Technical QA Reviewer: [signature] **Date:** 2/2/99

Project Manager: [signature] **Date:** 2/26/99

SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	DC-17	9812340-01A
2	DC-13	9812340-02A
3	DC-14 (field duplicate)	9812340-03A
4	DC-4	9812340-04A
5	DC-16	9812340-05A
6	DC-9	9812340-06A
7	DC-10	9812340-07A
8	DC-18	9812340-08A
9	DC-12	9812340-09A
10	DC-21	9812340-10A
11	DC-15	9812348-01A
12	DC-7	9812348-02A
13	DC-8 (field duplicate)	9812348-03A
14	DC-11	9812348-04A
15	DC-19	9812369-01A
16	DC-3 (equipment blank)	9812369-02A
17	DC-20 (background)	9812369-03A
18	DC-1 (background)	9812369-04A

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

DATA PACKAGE COMPLETENESS CHECKLIST:

Checklist Code:

- X Included: no problems
- * Included: problems noted in review
- O Not Included and/or Not Available
- NR Not Required
- RS Provided As Re-submission

Case Narrative:

- X Case Narrative present

Quality Control Summary Package:

- X Data Summary sheets
- X Matrix Spike/Spike Duplicate Recoveries
- X Laboratory Control Sample Recoveries
- X Method Blank Summaries
- X GC/MS Tuning and Mass Calibration
- X Initial Calibration Data
- X Continuing Calibration Data
- X Surrogate Compound Recovery Summary
- X Internal Standard Area Summary

Sample and Blank Data Package Section

- X Reconstructed Ion Current (RIC) Chromatogram
- X Quantitation Reports
- X Raw and Enhanced Mass Spectra
- X Reference Mass Spectra for Target Compounds
- NR Mass Spectral Library Search for TICs

Raw QC Data Package Section

- X DFTPP and/or BFB mass spectra and mass listings
- X RIC Chromatogram for Standards and MS/MSD Samples
- X Quantitation Reports for Standards and MS/MSD
- O List of Instrument Detection Limits
- X Chain-of-Custody Records
- X Sample Preparation and Analysis Run Logs

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

DATA VALIDATION SUMMARY

The data were reviewed following procedures and limits specified in the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004, OSWER Directive 9360.4-01, dated April 1990).

Indicate with a YES or NO whether each item is acceptable:

1	Holding Times	Yes
2	GC/MS Tuning Criteria	Yes
3	Initial Calibrations	Yes
4	Continuing Calibrations	Yes
5	Laboratory Control Sample	Not analyzed
6	Matrix Spike/Matrix Spike Duplicate	Not analyzed
7	Blanks and Background Samples	Yes
8	Surrogate Compounds	Yes
9	Internal Standards	Yes
10	Duplicate Analyses	Yes
11	Analyte Identification	Yes
12	Analyte Quantitation	Yes
13	Overall Assessment of Data	Yes
14	Usability of Data	Yes

Comments: None

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

1. HOLDING TIMES

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Samples were extracted and analyzed within required holding times except as noted under Comments. In addition, no problems were identified with regard to sample preservation or custody unless specified. For those sample fractions extracted or analyzed outside holding time requirements, the results have been qualified as estimated (J).

Air Samples:
EPA TO-14: 14 days (from collection) for analysis.

Comments: None.

2. GC/MS TUNING CRITERIA

__X__ **BFB has been run for every 12 hours of sample analysis per instrument.**

__X__ **The BFB ion abundance criteria indicated in EPA/540/G-90/004 have been met for each instrument.**

Comments: None

3. INITIAL CALIBRATIONS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Unless flagged below, a 5-point initial calibration was run. In addition, average Relative Response Factor (RRF), and percent relative Standard Deviation (%RSD) values were within control limits (average RRF >= 0.05; %RSD <= 30). For analytes which exceeded these control limits, associated data are qualified as estimated (J). In cases where the low calibration level was not detected, the detection limit is qualified (UJ). In cases where the analyte was not detected in the calibration, all associated data are rejected (R).

Comments:
The %RSD for vinyl acetate in the initial calibration was slightly high (32%). Because the associated sample results were nondetected, no data were qualified.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

4. CONTINUING CALIBRATIONS

__X__ **Acceptable**
_____ **Acceptable with qualification**
_____ **Unacceptable**

Unless flagged below, continuing calibrations were performed at the beginning and at the end of any group of samples and at least every 12 hours. In addition, Relative Response Factors (RRF), and Percent Difference (%D) values were within control limits (RRF >= 0.05; %D <= 25). For analytes which exceeded these control limits, associated data are qualified as estimated (J). In cases where the low calibration level was not detected, the detection limit is qualified (UJ). In cases where the analyte was not detected in the calibration, all associated data are rejected (R).

Comments:
The %D for chloroethane, 4-ethyltoluene, cis-1,3-DCP, trans-1,3-DCP, 1,3,5-trimethylbenzene, and hexachlorobutadiene in one continuing calibration was low (-35%, -28%, -26%, -31%, -28%, and -34%, respectively), indicating a decrease in instrument sensitivity. Detected results in associated samples were qualified as estimated (J) for chloroethane in samples DC-4 and DC-9, and 4-ethyltoluene in sample DC-15. The remaining results were nondetected and not qualified. The %D for acetone, 1,2-dichloroethane, and vinyl acetate in one continuing calibration were high (31%, 26%, and 90%, respectively), indicating a increase in instrument sensitivity. Detected results were qualified as estimated (J) for acetone in samples DC-4 and DC-9. The remaining results were nondetected and not qualified.

5. LABORATORY CONTROL SAMPLE

_____ **Acceptable**
_____ **Acceptable with qualification**
_____ **Unacceptable**
__X__ **No Laboratory Control Samples Analyzed**

Laboratory control sample recoveries are used for a qualitative indication of accuracy (bias) independent of matrix effects. Spike recovery limits of 80% to 120% are specified in EPA/540/G-90/004. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). At the discretion of the reviewer, other limits may be used only if justification can be provided.

Comments: None

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

_____ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
__X__ No Matrix Spike/Matrix Spike Duplicates Analyzed

Matrix spike and matrix spike duplicate recoveries are used for a qualitative indication of accuracy (bias) due to matrix effects. The RPD between the recoveries is used for a qualitative indication of precision. Spike recovery limits of 80% to 120% are specified in EPA/540/G-90/004. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). At the discretion of the reviewer, other limits may be used only if justification can be provided.

Comments: None.

7. BLANKS AND BACKGROUND SAMPLES

__X__ Acceptable
_____ Practical Quantitation Limit Adjusted

The following blanks were analyzed:
__X__ Method (preparation) Blanks
_____ Field Blanks
_____ Instrument Blanks
__X__ Equipment Blanks
__X__ Background Samples
_____ VOA Trip Blanks

Preparation (method) blanks were prepared for each batch of samples extracted. A preparation blank was analyzed after every continuing calibration standard, prior to sample analysis unless noted below. Any compound detected in the sample and also detected in any associated blank, must be qualified as non-detect (U) when the sample concentration is less than 5x the blank concentration.

Comments: Method blank results were nondetected. Twenty-four compounds were detected, at low levels, in the equipment blank (DC-3). The blank contaminants and concentrations are indicated on the data summary for sample DC-3. Based on the equipment blank results, 160 sample results were qualified as nondetected (U). After qualification, three compounds were detected in background sample DC-1 and one compound was detected in background sample DC-20.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

8. SURROGATE COMPOUNDS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Surrogate compound recoveries for samples analyzed within a sample group must be within the limits specified in the method. If the surrogate recovery is between 10% and the lower limit, the associated detected results are qualified as estimated (J) and the nondetected results are qualified as estimated (UJ). If the surrogate recovery is <10%, the associated detected results are qualified as estimated (J) and the nondetected results are rejected (R). If the surrogate recovery is above the upper limit, the associated detected results are qualified as estimated (J). Surrogate recoveries which exceeded these limits are noted below and the associated results are qualified on the attached sample report forms.

Comments: None.

9. INTERNAL STANDARDS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Internal Standard area counts for samples analyzed within a sample group must be within the range of 50% to 200% of the internal standard area for the continuing calibration. If the internal standard area is between 10% and 50% of this value, the associated detected results are qualified as estimated (J) and the nondetected results are qualified as estimated (UJ). If the internal standard area is <10% of the calibration area, both the detected and nondetected results are rejected (R). If the internal standard area is >200% of the calibration area, the associated detected results are qualified as estimated (J). Internal standards which exceeded these limits are noted below and the associated results are qualified on the attached sample report forms.

Comments: None

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

10. DUPLICATE ANALYSES

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Duplicates Analyzed

Type of duplicates analyzed:
__X__ Field Duplicates
__X__ Laboratory Duplicates

Calculate the relative Percent Difference (RPD) between the members of duplicate pairs using the equation indicated below. Qualify the results as estimated (J) for any analyte whose RPD exceeds that specified in the Sampling and Analysis Plan (SAP).

$$RPD = \frac{2(Value\ 1 - Value\ 2)}{Value\ 1 + Value\ 2} \times 100\%$$

Comments: An RPD limit of 50% was specified in the SAP. The RPD values for the laboratory duplicate, and field duplicate pairs DC-13/DC-14 and DC-7/DC-8 were within this limit for all compounds.

11. ANALYTE IDENTIFICATION

Evaluate the ion profiles for the sample analytes and compare them to the library ion profiles provided by the laboratory. Note any identifications which are not sufficiently supported by comparison to known ion profiles.

Comments:
Analyte identification is acceptable.

12. ANALYTE QUANTITATION

Confirm that analyte quantitation was performed correctly using the following formulas:

EPA TO14, air samples:

$$ppbv = \frac{(analyte\ area)(amount\ of\ internal\ standard,\ ng)}{(internal\ standard\ area)(RF)(volume\ of\ air,\ L)(dilution\ factor)}$$

Comments:
Analyte quantitation is acceptable.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	Location: Oakland, CA
Project TDD Number: 09-9611-0016	PAN: 09-0125-DCRS-XX

13. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the overall data usability for the specified level.

_____ **Acceptable**
__X__ **Acceptable with Qualification**
_____ **Rejected**

Accepted data meet the minimum requirements for the following EPA data category:
_____ **ERS Screening**
_____ **Non-definitive with 10 % Conformation by Definitive Methodology**
_____ **Definitive, Comprehensive Statistical Error Determination was performed.**
__X__ **Definitive, Comprehensive Statistical Error Determination was not performed.**

Any qualifications to individual sample analysis results are detailed in the appropriate section above or appear under the comments section below. In cases where several QC criteria are out of specification, it may be appropriate to further qualify the data usability. The data reviewer must use professional judgment and express concerns and comments on the data validity for each specific data package.

Comments: Because the continuing calibration control exceedances did not suggest a probability that false negatives or false positives could be reported, the data are acceptable with five detected results qualified as estimated.

~~180~~ results were qualified as nondetected due to equipment blank contamination. As a result the practical quantitation limits were raised for these qualified results. Vinyl chloride is the only target analyte which has an action level (30 ppb) defined in the Sampling and Analysis Plan (SAP). No vinyl chloride results above the action level were qualified as nondetected.

ANALYTICAL DATA REVIEW SUMMARY

Site Name: DC Metals	**Location: Oakland, CA**
Project TDD Number: 09-9611-0016	**PAN: 09-0125-DCRS-XX**

14. USABILITY OF DATA

A. These data are considered usable for the following the data use objectives stated in the DC Metals Site Air Sampling and Analysis Plan (SAP).

The following data use objectives were indicated in the SAP:
The data will be compared with data from investigations conducted in 1996 and 1997 to determine the following:

1. Whether sampling should be initiated in residential properties.

2. Whether the treatment system should be re-started.

3. Whether further site characterization is necessary.

Five detected results were qualified as estimated due to continuing calibration results not within the control limits. 160 results were qualified as nondetected due to equipment blank results. Because there is a low probability that false negatives or false positives could be reported, the data are usable for the purposes indicated above.

B. These data meet quality objectives stated in the SAP.
As indicated in Section 3.5.2 of the SAP, the sample analyses will require fully validatable data packages and data in the "definitive" category. Section 3.5.3 of the SAP defines data quality indicators for the project. The data in this package meet these criteria.

Attached are copies of all data summary sheets, with data qualifiers indicated, and a copy of the chain of custody for the samples.

Office of Enforcement

CHAIN OF CUSTODY RECORD

9812040

75 Hawthorne Street
San Francisco, California 94105

PROJ. NO. 015DCTA

PROJECT NAME: DC Metals

SAMPLERS: (Signature) C. McLeod Lisa Sutherland

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TO-14	Start Pressure (in Hg)	End Pressure			REMARKS
												12/21/98 (IK)
	12/10/98	1543		✓	DC17	1xSUMMA	✓	28.5	5			5.0"Hg
		1135		✓	DC13	1xSUMMA	✓	28	1			May be high concentrations 2.0"Hg
		1158		✓	DC14	1xSUMMA	✓	28	1			2.5"Hg
		1655		✓	DC4	1xSUMMA	✓	28	0			Probable high concentration 0.5"Hg

Standard t-a-t
- Data Summary, 10 working days
FAX to: C. McLeod 415 981 0801
- Data Validation Package, 30 days
Mail to: C. McLeod
Ecology & Environment
350 Sansome St Ste 300
San Francisco, CA 94104

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
C. McLeod	12/10/98 1359	To Fedex			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		Theresa Shepherd	12/9/98 945		

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

Office of Emergency ...

CHAIN OF CUSTODY RECORD

San Francisco, California 94105

PROJ NO.	PROJECT NAME
0125DCTA	DC Metals

SAMPLERS: (Signature) B. Strickland

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TO-14	STARTING P (in Hg)	ENDING P (in Hg)			REMARKS
												12/21/98 (MK)
DC-16	12/17/98	0915		X	DC-16	1	X	-27.5	-0			-2.0"Hg
DC-9	"	1614		✓	DC-9	1 Summa	✓	-25	-0			-1.0"Hg
DC-10	12/18/98	0951		✓	DC-10	1 SUMMA	✓	-25.5	-0			-2.5"Hg
DC-18	"	1055		✓	DC-18	1 SUMMA	✓	-25.5	-0			-1.5"Hg
~~DC-19~~	~~"~~	1021		✓	DC-19 (8)	~~1 SUMMA~~		-24	-0 (8)			

Standard t-a-t
- Data summary, 10 working days, FAX to: C. McLeod 415 981 0801
- Data validation package, 30 days, send to: C. McLeod Ecology & Environment 350 Sansome St Ste 300 San Francisco, CA 94104

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
CMcleod	12/18/98 1350	To Fedex			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		Theresa Abrigo AR	12/19/98 945		

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

Custody Seal Intact? Y N None Temp Ambient

9 25027

Office of Enforcement

CHAIN OF CUSTODY RECORD

San Francisco, California 94105

PROJ. NO.	PROJECT NAME
2125 DCTA	DC Metals

SAMPLERS: (Signature)
CMcleod

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TO-14	REMARKS
DC-12	12/10/98	1412		✓	DC-12	1 x SUMMA	✓	12/21/98 (MC) 1.5" Hg
DC-21		1535		✓	DC-21	1 x SUMMA	✓	May be high concentration 1.5" Hg

1 unused SUMMA canister
Stainless steel filters

Standard t-a-t
- Data summary, 10 working days
FAX to C. McLeod 4159812811
- Data validation package, 30 days
Mail to: C. McLeod
Ecology & Environment
350 Sansome St Suite 300
San Francisco, CA 94104

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
CMcleod	12/10/98 1550				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		Theresa Arzepeke ATL	12/19/98 945		

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

Custody Seal Intact? Y N None Temp Ambient

9 25015

Office of Enforcement

CHAIN OF CUSTODY RECORD

San Francisco, California 94105

PROJ. NO.: 0125DCT2 | PROJECT NAME: DC Metals

SAMPLERS: (Signature) Alisa Sutherland CMcleod

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TO-14		STARTING P (in Hg)	ENDING P (in Hg)			REMARKS
DC-15	12/16/98	15:10		X	DC-15	1	X		28	Ø			Maybe High Concentration 1.5" Hg
DC-7	12/17/98	~~15:20~~ 12:20		X	DC-7	1	X		25.4	Ø			1.0" Hg
DC-8	12/17/98	1516		X	DC-8	1	X		24.5	Ø			Ø" Hg
DC-11	12/17/98	1030		X	DC-11	1	X		28	3			40" Hg

12/22/98 (nr)

Standard t-a-t
- Data Summary, 10 working days
Fax to: C. McLeod 4159810801
- Data Validation Package
30 days, Mail to: C. McLeod
350 Sansome St Suite ~~300~~ 300
San Francisco, CA ~~94~~ 94104

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
CMcleod	12/18/98 1352	To Fedex			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
			12/21/98 9601		

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

Y N None Temp

9 25028

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

CHAIN OF CUSTODY RECORD

REGION 9
75 Hawthorne Street
San Francisco, California 94105

PROJ NO.	PROJECT NAME
0125DCTA	DC Metals

SAMPLERS: (Signature)
CMcleod / D Workstrake

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TO-14		START P (in. Hg)	End P (in. Hg)			REMARKS
DC-19	12/18/98	1021		/	DC-19	1 SUMMA	X		24	ϕ			2.0" Hg
DC-3	12/18	1331		/	DC-3	"	X		24	ϕ			0.5" Hg
DC-20	12/18	1335		/	DC-20	"	X		29.5	ϕ			0.2 PSI
DC-1	12/18	1341		/	DC-1	"	X		24	ϕ			0.2 PSI

12/23/98 (MK)

Standard T-1-T
- 10 working days FAX summary to C. Mcleod 415 981 0801
- 30 days - data validation package to: C. Mcleod
Ecology & Environment
350 Sansome Ste 300, SF 94104

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
CMcleod	12/18/98 1401	To Fedex			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		Theresa Strobeck	12/22/98 930		

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-3
Equipment Blank

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 100 ml
% Moisture: NA
Instrument ID: msdj.i

Contract:
SDG No.:

Lab Sample ID: 9812369-02A
Lab File ID: j123107
Date Received: 12/22/98
Date Analyzed: 12/31/98
Dilution Factor: 1.36

CAS #	Compound	Concentration (ppbv)	Q
75-71-8	Freon 12	0.68	U
76-14-2	Freon 114	0.68	U
74-87-3	Chloromethane	1.1	
75-01-4	Vinyl Chloride	0.89	
74-83-9	Bromomethane	0.68	U
75-00-3	Chloroethane	0.68	U
75-69-4	Freon 11	0.68	U
75-35-4	1,1-Dichloroethene	0.68	U
76-13-1	Freon 113	0.68	U
75-09-2	Methylene Chloride	7.4	
75-34-3	1,1-Dichloroethane	4.2	
156-59-2	cis-1,2-Dichloroethene	45	
67-66-3	Chloroform	0.68	U
71-55-6	1,1,1-Trichloroethane	0.68	U
56-23-5	Carbon Tetrachloride	0.68	U
71-43-2	Benzene	1.8	
107-06-2	1,2-Dichloroethane	0.68	U
79-01-6	Trichloroethene	0.97	
78-87-5	1,2-Dichloropropane	0.68	U
10061-01-5	cis-1,3-Dichloropropene	0.68	U
108-88-3	Toluene	120	
10061-02-6	trans-1,3-Dichloropropene	0.68	U
79-00-5	1,1,2-Trichloroethane	0.68	U
127-18-4	Tetrachloroethene	1.1	
106-93-4	Ethylene Dibromide	0.68	U
108-90-7	Chlorobenzene	6.2	
100-41-4	Ethyl Benzene	17	
108-38-3	m,p-Xylene	67	
95-47-6	o-Xylene	33	
100-42-5	Styrene	0.68	U
79-34-5	1,1,2,2-Tetrachloroethane	0.68	U
108-67-8	1,3,5-Trimethylbenzene	25	
95-63-6	1,2,4-Trimethylbenzene	64	
541-73-1	1,3-Dichlorobenzene	1.2	
106-46-7	1,4-Dichlorobenzene	140	
100-44-7	Chlorotoluene	0.68	U
95-50-1	1,2-Dichlorobenzene	27	
120-82-1	1,2,4-Trichlorobenzene	0.68	U
87-68-3	Hexachlorobutadiene	0.68	U
115-07-1	Propylene	2.7	U

FORM I-ATL

1/5/99

LEVEL-IV VALIDATABLE

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 100 ml
% Moisture: NA
Instrument ID: msdj.i

EPA Method TO-14

Contract:
SDG No.:

SAMPLE
DC-3
Equipment

Lab Sample ID: 9812369-02A
Lab File ID: j123107
Date Received: 12/22/98
Date Analyzed: 12/31/98
Dilution Factor: 1.36

CAS #	Compound	Concentration (ppbv)	Q
106-99-0	1,3-Butadiene	2.7	
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	2.7	
67-63-0	2-Propanol	2.7	U
156-60-5	trans-1,2-Dichloroethene	2.8	U
108-05-4	Vinyl Acetate	2.7	J
78-93-3	2-Butanone (Methyl Ethyl Ketone)	5.1	U
110-54-3	Hexane	2.7	
109-99-9	Tetrahydrofuran	6.5	U
110-82-7	Cyclohexane	2.7	
123-91-1	1,4-Dioxane	2.7	U
75-27-4	Bromodichloromethane	2.7	U
108-10-1	4-Methyl-2-pentanone	2.7	U
591-78-6	2-Hexanone	2.7	U
124-48-1	Dibromochloromethane	2.7	U
75-25-2	Bromoform	2.7	U
622-96-8	4-Ethyltoluene	2.7	U
64-17-5	Ethanol	69	
1634-04-4	Methyl tert-Butyl Ether	4.8	
142-82-5	Heptane	2.7	U
		2.7	U

FORM I-ATL

1/29/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC17

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 50 ml
% Moisture: NA
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-01A
Lab File ID: 1122907
Date Received: 12/19/98
Date Analyzed: 12/29/98
Dilution Factor: 6.44

CAS #	Compound	Concentration (ppbv)	Q
75-71-8	Freon 12	3.2	U
76-14-2	Freon 114	3.2	U
74-87-3	Chloromethane	3.2	U
75-01-4	Vinyl Chloride	140	
74-83-9	Bromomethane	3.2	U
75-00-3	Chloroethane	3.2	U
75-69-4	Freon 11	3.2	U
75-35-4	1,1-Dichloroethene	3.2	U
76-13-1	Freon 113	3.2	U
75-09-2	Methylene Chloride	5.7	U
75-34-3	1,1-Dichloroethane	96	
156-59-2	cis-1,2-Dichloroethene	1100	
67-66-3	Chloroform	3.2	U
71-55-6	1,1,1-Trichloroethane	3.2	U
56-23-5	Carbon Tetrachloride	3.2	U
71-43-2	Benzene	12	J
107-06-2	1,2-Dichloroethane	3.2	U
79-01-6	Trichloroethene	15	
78-87-5	1,2-Dichloropropane	3.2	U
10061-01-5	cis-1,3-Dichloropropene	3.2	U
108-88-3	Toluene	870	
10061-02-6	trans-1,3-Dichloropropene	3.2	U
79-00-5	1,1,2-Trichloroethane	3.2	U
127-18-4	Tetrachloroethene	9.0	J
106-93-4	Ethylene Dibromide	3.2	U
108-90-7	Chlorobenzene	200	
100-41-4	Ethyl Benzene	120	
108-38-3	m,p-Xylene	380	
95-47-6	o-Xylene	170	
100-42-5	Styrene	3.2	U
79-34-5	1,1,2,2-Tetrachloroethane	3.2	U
108-67-8	1,3,5-Trimethylbenzene	190	
95-63-6	1,2,4-Trimethylbenzene	510	
541-73-1	1,3-Dichlorobenzene	56	
106-46-7	1,4-Dichlorobenzene	280	U
100-44-7	Chlorotoluene	3.2	U
95-50-1	1,2-Dichlorobenzene	740	
120-82-1	1,2,4-Trichlorobenzene	3.2	U
87-68-3	Hexachlorobutadiene	3.2	U
115-07-1	Propylene	13	U

FORM I-ATL

11/27/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC17

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 50 ml
% Moisture: NA
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-01A
Lab File ID: t122907
Date Received: 12/19/98
Date Analyzed: 12/29/98
Dilution Factor: 6.44

CAS #	Compound	Concentration (ppbv)	Q
106-99-0	1,3-Butadiene	13	U
67-64-1	Acetone	14	~~J~~ U
75-15-0	Carbon Disulfide	13	U
67-63-0	2-Propanol	13	U
156-60-5	trans-1,2-Dichloroethene	26	J
108-05-4	Vinyl Acetate	13	U
78-93-3	2-Butanone (Methyl Ethyl Ketone)	13	U
110-54-3	Hexane	76	
109-99-9	Tetrahydrofuran	13	U
110-82-7	Cyclohexane	34	
123-91-1	1,4-Dioxane	13	U
75-27-4	Bromodichloromethane	13	U
108-10-1	4-Methyl-2-pentanone	13	U
591-78-6	2-Hexanone	13	U
124-48-1	Dibromochloromethane	13	U
75-25-2	Bromoform	13	U
622-96-8	4-Ethyltoluene	620	
64-17-5	Ethanol	13	U
1634-04-4	Methyl tert-Butyl Ether	13	U
142-82-5	Heptane	140	

EQL
1/27/99

FORM I-ATL

LEVEL-IV VALIDATABLE

SAMPLE 000044

DC-13

EPA Method TO-14

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 25 ml
% Moisture: NA
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-02A
Lab File ID: t122911
Date Received: 12/19/98
Date Analyzed: 12/29/98
Dilution Factor: 5760

CAS #	Compound	Concentration (ppbv)	Q
75-71-8	Freon 12	2900	U
76-14-2	Freon 114	2900	U
74-87-3	Chloromethane	2900	U
75-01-4	Vinyl Chloride	1100000	
74-83-9	Bromomethane	2900	U
75-00-3	Chloroethane	2900	U
75-69-4	Freon 11	2900	U
75-35-4	1,1-Dichloroethene	2900	U
76-13-1	Freon 113	2900	U
75-09-2	Methylene Chloride	8300	J
75-34-3	1,1-Dichloroethane	86000	
156-59-2	cis-1,2-Dichloroethene	720000	
67-66-3	Chloroform	2900	U
71-55-6	1,1,1-Trichloroethane	2900	U
56-23-5	Carbon Tetrachloride	2900	U
71-43-2	Benzene	3100	J
107-06-2	1,2-Dichloroethane	2900	U
79-01-6	Trichloroethene	2900	U
78-87-5	1,2-Dichloropropane	2900	U
10061-01-5	cis-1,3-Dichloropropene	2900	U
108-88-3	Toluene	83000	
10061-02-6	trans-1,3-Dichloropropene	2900	U
79-00-5	1,1,2-Trichloroethane	2900	U
127-18-4	Tetrachloroethene	2900	U
106-93-4	Ethylene Dibromide	2900	U
108-90-7	Chlorobenzene	2900	U
100-41-4	Ethyl Benzene	2900	U
108-38-3	m,p-Xylene	8200	J
95-47-6	o-Xylene	4300	J
100-42-5	Styrene	2900	U
79-34-5	1,1,2,2-Tetrachloroethane	2900	U
108-67-8	1,3,5-Trimethylbenzene	3600	J
95-63-6	1,2,4-Trimethylbenzene	6900	J
541-73-1	1,3-Dichlorobenzene	2900	U
106-46-7	1,4-Dichlorobenzene	2900	U
100-44-7	Chlorotoluene	2900	U
95-50-1	1,2-Dichlorobenzene	2900	U
120-82-1	1,2,4-Trichlorobenzene	2900	U
87-68-3	Hexachlorobutadiene	2900	U
115-07-1	Propylene	12000	U

FORM I-ATL

1/27/99

000045

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-13

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 25 ml
% Moisture: NA
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-02A
Lab File ID: t122911
Date Received: 12/19/98
Date Analyzed: 12/29/98
Dilution Factor: 5760

CAS #	Compound	Concentration (ppbv)	Q
106-99-0	1,3-Butadiene	12000	U
67-64-1	Acetone	12000	U
75-15-0	Carbon Disulfide	12000	U
67-63-0	2-Propanol	17000	J
156-60-5	trans-1.2-Dichloroethene	12000	J
108-05-4	Vinyl Acetate	12000	U
78-93-3	2-Butanone (Methyl Ethyl Ketone)	12000	U
110-54-3	Hexane	12000	U
109-99-9	Tetrahydrofuran	12000	U
110-82-7	Cyclohexane	12000	U
123-91-1	1,4-Dioxane	12000	U
75-27-4	Bromodichloromethane	12000	U
108-10-1	4-Methyl-2-pentanone	12000	U
591-78-6	2-Hexanone	12000	U
124-48-1	Dibromochloromethane	12000	U
75-25-2	Bromoform	12000	U
622-96-8	4-Ethyltoluene	13000	J
64-17-5	Ethanol	12000	U
1634-04-4	Methyl tert-Butyl Ether	12000	U
142-82-5	Heptane	12000	U

FORM I-ATL

EDL 1/27/99

000065

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC14

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 30 ml
% Moisture: NA
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-03A
Lab File ID: t122912
Date Received: 12/19/98
Date Analyzed: 12/29/98
Dilution Factor: 4870

CAS #	Compound	Concentration (ppbv)	Q
75-71-8	Freon 12	2400	U
76-14-2	Freon 114	2400	U
74-87-3	Chloromethane	2400	U
75-01-4	Vinyl Chloride	730000	
74-83-9	Bromomethane	2400	U
75-00-3	Chloroethane	2400	U
75-69-4	Freon 11	2400	U
75-35-4	1,1-Dichloroethene	2400	U
76-13-1	Freon 113	2400	U
75-09-2	Methylene Chloride	5800	J
75-34-3	1,1-Dichloroethane	56000	
156-59-2	cis-1,2-Dichloroethene	480000	
67-66-3	Chloroform	2400	U
71-55-6	1,1,1-Trichloroethane	2400	U
56-23-5	Carbon Tetrachloride	2400	U
71-43-2	Benzene	2400	U
107-06-2	1,2-Dichloroethane	2400	U
79-01-6	Trichloroethene	2400	U
78-87-5	1,2-Dichloropropane	2400	U
10061-01-5	cis-1,3-Dichloropropene	2400	U
108-88-3	Toluene	56000	
10061-02-6	trans-1,3-Dichloropropene	2400	U
79-00-5	1,1,2-Trichloroethane	2400	U
127-18-4	Tetrachloroethene	2400	U
106-93-4	Ethylene Dibromide	2400	U
108-90-7	Chlorobenzene	2400	U
100-41-4	Ethyl Benzene	2400	U
108-38-3	m,p-Xylene	5600	J
95-47-6	o-Xylene	3600	J
100-42-5	Styrene	2400	U
79-34-5	1,1,2,2-Tetrachloroethane	2400	U
108-67-8	1,3,5-Trimethylbenzene	2700	J
95-63-6	1,2,4-Trimethylbenzene	5400	J
541-73-1	1,3-Dichlorobenzene	2400	U
106-46-7	1,4-Dichlorobenzene	2400	U
100-44-7	Chlorotoluene	2400	U
95-50-1	1,2-Dichlorobenzene	2400	U
120-82-1	1,2,4-Trichlorobenzene	2400	U
87-68-3	Hexachlorobutadiene	2400	U
115-07-1	Propylene	9700	U

FORM I-ATL

1/27/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC14

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 30 ml
% Moisture: NA
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-03A
Lab File ID: t122912
Date Received: 12/19/98
Date Analyzed: 12/29/98
Dilution Factor: 4870

CAS #	Compound	Concentration (ppbv)	Q
106-99-0	1,3-Butadiene	9700	U
67-64-1	Acetone	9700	U
75-15-0	Carbon Disulfide	9700	U
67-63-0	2-Propanol	9700	U
156-60-5	trans-1,2-Dichloroethene	9700	U
108-05-4	Vinyl Acetate	9700	U
78-93-3	2-Butanone (Methyl Ethyl Ketone)	9700	U
110-54-3	Hexane	9700	U
109-99-9	Tetrahydrofuran	9700	U
110-82-7	Cyclohexane	9700	U
123-91-1	1,4-Dioxane	9700	U
75-27-4	Bromodichloromethane	9700	U
108-10-1	4-Methyl-2-pentanone	9700	U
591-78-6	2-Hexanone	9700	U
124-48-1	Dibromochloromethane	9700	U
75-25-2	Bromoform	9700	U
622-96-8	4-Ethyltoluene	9900	J
64-17-5	Ethanol	9700	U
1634-04-4	Methyl tert-Butyl Ether	9700	U
142-82-5	Heptane	9700	U

FORM I-ATL

1/27/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC4

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 40 ml
% Moisture: NA
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-04A
Lab File ID: t122913
Date Received: 12/19/98
Date Analyzed: 12/29/98
Dilution Factor: 3400

CAS #	Compound	Concentration (ppbv)	Q
75-71-8	Freon 12	1700	U
76-14-2	Freon 114	1700	U
74-87-3	Chloromethane	1700	U
75-01-4	Vinyl Chloride	280000	
74-83-9	Bromomethane	1700	U
75-00-3	Chloroethane	15000	J
75-69-4	Freon 11	1700	U
75-35-4	1,1-Dichloroethene	1700	U
76-13-1	Freon 113	1700	U
75-09-2	Methylene Chloride	6300	J
75-34-3	1,1-Dichloroethane	15000	
156-59-2	cis-1,2-Dichloroethene	27000	
67-66-3	Chloroform	1700	U
71-55-6	1,1,1-Trichloroethane	1700	U
56-23-5	Carbon Tetrachloride	1700	U
71-43-2	Benzene	2700	J
107-06-2	1,2-Dichloroethane	1700	U
79-01-6	Trichloroethene	1700	U
78-87-5	1,2-Dichloropropane	1700	U
10061-01-5	cis-1,3-Dichloropropene	1700	U
108-88-3	Toluene	240000	
10061-02-6	trans-1,3-Dichloropropene	1700	U
79-00-5	1,1,2-Trichloroethane	1700	U
127-18-4	Tetrachloroethene	1700	U
106-93-4	Ethylene Dibromide	1700	U
108-90-7	Chlorobenzene	1700	U
100-41-4	Ethyl Benzene	18000	
108-38-3	m,p-Xylene	61000	
95-47-6	o-Xylene	22000	
100-42-5	Styrene	1700	U
79-34-5	1,1,2,2-Tetrachloroethane	1700	U
108-67-8	1,3,5-Trimethylbenzene	4500	J
95-63-6	1,2,4-Trimethylbenzene	8000	
541-73-1	1,3-Dichlorobenzene	1700	U
106-46-7	1,4-Dichlorobenzene	1700	U
100-44-7	Chlorotoluene	1700	U
95-50-1	1,2-Dichlorobenzene	1700	U
120-82-1	1,2,4-Trichlorobenzene	1700	U
87-68-3	Hexachlorobutadiene	1700	U
115-07-1	Propylene	6800	U

FORM I-ATL

1/07/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC4

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 40 ml
% Moisture: NA
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-04A
Lab File ID: t122913
Date Received: 12/19/98
Date Analyzed: 12/29/98
Dilution Factor: 3400

CAS #	Compound	Concentration (ppbv)	Q
106-99-0	1,3-Butadiene	6800	U
67-64-1	Acetone	9900	J
75-15-0	Carbon Disulfide	6800	U
67-63-0	2-Propanol	6800	U
156-60-5	trans-1,2-Dichloroethene	6800	U
108-05-4	Vinyl Acetate	6800	U
78-93-3	2-Butanone (Methyl Ethyl Ketone)	6800	U
110-54-3	Hexane	6800	U
109-99-9	Tetrahydrofuran	6800	U
110-82-7	Cyclohexane	6800	U
123-91-1	1,4-Dioxane	6800	U
75-27-4	Bromodichloromethane	6800	U
108-10-1	4-Methyl-2-pentanone	6800	U
591-78-6	2-Hexanone	6800	U
124-48-1	Dibromochloromethane	6800	U
75-25-2	Bromoform	6800	U
622-96-8	4-Ethyltoluene	10000	J
64-17-5	Ethanol	6800	U
1634-04-4	Methyl tert-Butyl Ether	6800	U
142-82-5	Heptane	30000	

FORM I-ATL

1/27/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-16

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 60 ml
% Moisture: N/A
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-05A
Lab File ID: t122910
Date Received: 12/19/98
Date Analyzed: 12/29/98
Dilution Factor: 4.80

CAS #	Compound	Concentration (ppbv)	Q
75-71-8	Freon 12	2.4	U
76-14-2	Freon 114	2.4	U
74-87-3	Chloromethane	2.4	U
75-01-4	Vinyl Chloride	25	
74-83-9	Bromomethane	2.4	U
75-00-3	Chloroethane	2.4	U
75-69-4	Freon 11	2.4	U
75-35-4	1,1-Dichloroethene	2.4	U
76-13-1	Freon 113	2.4	U
75-09-2	Methylene Chloride	3.8	U
75-34-3	1,1-Dichloroethane	28	
156-59-2	cis-1,2-Dichloroethene	430	
67-66-3	Chloroform	2.4	U
71-55-6	1,1,1-Trichloroethane	2.4	U
56-23-5	Carbon Tetrachloride	2.4	U
71-43-2	Benzene	6.1	U
107-06-2	1,2-Dichloroethane	2.4	U
79-01-6	Trichloroethene	46	
78-87-5	1,2-Dichloropropane	2.4	U
10061-01-5	cis-1,3-Dichloropropene	2.4	U
108-88-3	Toluene	780	
10061-02-6	trans-1,3-Dichloropropene	2.4	U
79-00-5	1,1,2-Trichloroethane	2.4	U
127-18-4	Tetrachloroethene	5.5	U
106-93-4	Ethylene Dibromide	2.4	U
108-90-7	Chlorobenzene	26	U
100-41-4	Ethyl Benzene	110	
108-38-3	m,p-Xylene	440	
95-47-6	o-Xylene	200	
100-42-5	Styrene	2.4	U
79-34-5	1,1,2,2-Tetrachloroethane	2.4	U
108-67-8	1,3,5-Trimethylbenzene	90	U
95-63-6	1,2,4-Trimethylbenzene	210	U
541-73-1	1,3-Dichlorobenzene	3.9	U
106-46-7	1,4-Dichlorobenzene	21	U
100-44-7	Chlorotoluene	2.4	U
95-50-1	1,2-Dichlorobenzene	71	U
120-82-1	1,2,4-Trichlorobenzene	2.4	U
87-68-3	Hexachlorobutadiene	2.4	U
115-07-1	Propylene	9.6	U

FORM I-ATL

1/27/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-16

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 60 ml
% Moisture: N/A
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-05A
Lab File ID: t122910
Date Received: 12/19/98
Date Analyzed: 12/29/98
Dilution Factor: 4.80

CAS #	Compound	Concentration (ppbv)	Q
106-99-0	1,3-Butadiene	9.6	U
67-64-1	Acetone	11	J
75-15-0	Carbon Disulfide	9.6	U
67-63-0	2-Propanol	9.6	U
156-60-5	trans-1,2-Dichloroethene	9.7	U
108-05-4	Vinyl Acetate	9.6	U
78-93-3	2-Butanone (Methyl Ethyl Ketone)	9.6	U
110-54-3	Hexane	13	J
109-99-9	Tetrahydrofuran	9.6	U
110-82-7	Cyclohexane	9.6	U
123-91-1	1,4-Dioxane	9.6	U
75-27-4	Bromodichloromethane	9.6	U
108-10-1	4-Methyl-2-pentanone	9.6	U
591-78-6	2-Hexanone	9.6	U
124-48-1	Dibromochloromethane	9.6	U
75-25-2	Bromoform	9.6	U
622-96-8	4-Ethyltoluene	260	U
64-17-5	Ethanol	9.6	U
1634-04-4	Methyl tert-Butyl Ether	9.6	U
142-82-5	Heptane	27	

FORM I-ATL

1/27/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-9

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 80 ml
% Moisture: N/A
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-06A
Lab File ID: t122914
Date Received: 12/19/98
Date Analyzed: 12/29/98
Dilution Factor: 3.48

CAS #	Compound	Concentration (ppbv)	Q
75-71-8	Freon 12	9.0	
76-14-2	Freon 114	1.7	U
74-87-3	Chloromethane	1.7	U
75-01-4	Vinyl Chloride	34	
74-83-9	Bromomethane	1.7	U
75-00-3	Chloroethane	220	J
75-69-4	Freon 11	1.7	U
75-35-4	1,1-Dichloroethene	1.7	U
76-13-1	Freon 113	170	
75-09-2	Methylene Chloride	10	U
75-34-3	1,1-Dichloroethane	83	
156-59-2	cis-1,2-Dichloroethene	68	U
67-66-3	Chloroform	1.7	U
71-55-6	1,1,1-Trichloroethane	5.0	J
56-23-5	Carbon Tetrachlonde	1.7	U
71-43-2	Benzene	27	
107-06-2	1,2-Dichloroethane	1.7	U
79-01-6	Trichloroethene	1.7	U
78-87-5	1,2-Dichloropropane	1.7	U
10061-01-5	cis-1,3-Dichloropropene	1.7	U
108-88-3	Toluene	330	U
10061-02-6	trans-1,3-Dichloropropene	1.7	U
79-00-5	1,1,2-Trichloroethane	1.7	U
127-18-4	Tetrachloroethene	3.8	U
106-93-4	Ethylene Dibromide	1.7	U
108-90-7	Chlorobenzene	1.7	U
100-41-4	Ethyl Benzene	22	U
108-38-3	m,p-Xylene	120	U
95-47-6	o-Xylene	62	U
100-42-5	Styrene	1.7	U
79-34-5	1,1,2,2-Tetrachloroethane	1.7	U
108-67-8	1,3,5-Trimethylbenzene	35	U
95-63-6	1,2,4-Trimethylbenzene	110	U
541-73-1	1,3-Dichlorobenzene	2.2	U
106-46-7	1,4-Dichlorobenzene	12	U
100-44-7	Chlorotoluene	1.7	U
95-50-1	1,2-Dichlorobenzene	41	U
120-82-1	1,2,4-Trichlorobenzene	1.7	U
87-68-3	Hexachlorobutadiene	1.7	U
115-07-1	Propylene	7.0	U

FORM I-ATL

1/27/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-9

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 80 ml
% Moisture: N/A
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-06A
Lab File ID: t122914
Date Received: 12/19/98
Date Analyzed: 12/29/98
Dilution Factor: 3.48

CAS #	Compound	Concentration (ppbv)	Q
106-99-0	1,3-Butadiene	7.0	U
67-64-1	Acetone	62	J
75-15-0	Carbon Disulfide	7.0	U
67-63-0	2-Propanol	7.0	U
156-60-5	trans-1,2-Dichloroethene	7.0	U
108-05-4	Vinyl Acetate	7.0	U
78-93-3	2-Butanone (Methyl Ethyl Ketone)	7.0	U
110-54-3	Hexane	460	
109-99-9	Tetrahydrofuran	7.0	U
110-82-7	Cyclohexane	100	
123-91-1	1,4-Dioxane	7.0	U
75-27-4	Bromodichloromethane	7.0	U
108-10-1	4-Methyl-2-pentanone	7.0	U
591-78-6	2-Hexanone	7.0	U
124-48-1	Dibromochloromethane	7.0	U
75-25-2	Bromoform	7.0	U
622-96-8	4-Ethyltoluene	97	J
64-17-5	Ethanol	36	
1634-04-4	Methyl tert-Butyl Ether	7.0	U
142-82-5	Heptane	130	

FORM I-ATL

1/27/99

000210

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-10

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 4.0 ml
% Moisture: N/A
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-07A
Lab File ID: t123011
Date Received: 12/19/98
Date Analyzed: 12/30/98
Dilution Factor: 73.0

CAS #	Compound	Concentration (ppbv)	Q
75-71-8	Freon 12	37	U
76-14-2	Freon 114	37	U
74-87-3	Chloromethane	37	U
75-01-4	Vinyl Chloride	1600	
74-83-9	Bromomethane	37	U
75-00-3	Chloroethane	37	U
75-69-4	Freon 11	37	U
75-35-4	1,1-Dichloroethene	37	U
76-13-1	Freon 113	37	U
75-09-2	Methylene Chloride	37	U
75-34-3	1,1-Dichloroethane	37	U
156-59-2	cis-1,2-Dichloroethene	460	
67-66-3	Chloroform	37	U
71-55-6	1,1,1-Trichloroethane	37	U
56-23-5	Carbon Tetrachloride	37	U
71-43-2	Benzene	1100	
107-06-2	1,2-Dichloroethane	37	U
79-01-6	Trichloroethene	1100	
78-87-5	1,2-Dichloropropane	37	U
10061-01-5	cis-1,3-Dichloropropene	37	U
108-88-3	Toluene	450	U
10061-02-6	trans-1,3-Dichloropropene	37	U
79-00-5	1,1,2-Trichloroethane	37	U
127-18-4	Tetrachloroethene	580	
106-93-4	Ethylene Dibromide	37	U
108-90-7	Chlorobenzene	240	
100-41-4	Ethyl Benzene	120	U
108-38-3	m,p-Xylene	510	
95-47-6	o-Xylene	330	
100-42-5	Styrene	37	U
79-34-5	1,1,2,2-Tetrachloroethane	37	U
108-67-8	1,3,5-Trimethylbenzene	150	
95-63-6	1,2,4-Trimethylbenzene	290	U
541-73-1	1,3-Dichlorobenzene	37	U
106-46-7	1,4-Dichlorobenzene	12000	
100-44-7	Chlorotoluene	37	U
95-50-1	1,2-Dichlorobenzene	37	U
120-82-1	1,2,4-Trichlorobenzene	37	U
87-68-3	Hexachlorobutadiene	37	U
115-07-1	Propylene	150	U

FORM I-ATL

000211

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-10

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 4.0 ml
% Moisture: N/A
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-07A
Lab File ID: t123011
Date Received: 12/19/98
Date Analyzed: 12/30/98
Dilution Factor: 73.0

CAS #	Compound	Concentration (ppbv)	Q
106-99-0	1,3-Butadiene	150	U
67-64-1	Acetone	150	U
75-15-0	Carbon Disulfide	150	U
67-63-0	2-Propanol	150	U
156-60-5	trans-1,2-Dichloroethene	150	U
108-05-4	Vinyl Acetate	150	U
78-93-3	2-Butanone (Methyl Ethyl Ketone)	150	U
110-54-3	Hexane	150	U
109-99-9	Tetrahydrofuran	150	U
110-82-7	Cyclohexane	260	J
123-91-1	1,4-Dioxane	150	U
75-27-4	Bromodichloromethane	150	U
108-10-1	4-Methyl-2-pentanone	150	U
591-78-6	2-Hexanone	150	U
124-48-1	Dibromochloromethane	150	U
75-25-2	Bromoform	150	U
622-96-8	4-Ethyltoluene	180	~~J~~ U
64-17-5	Ethanol	150	U
1634-04-4	Methyl tert-Butyl Ether	710	
142-82-5	Heptane	150	U

FORM I-ATL

1/20/99

000237

LEVEL-IV VALIDATABLE

SAMPLE NO.
DC-18

EPA Method TO-14

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 120 ml
% Moisture: N/A
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-08A
Lab File ID: t123010
Date Received: 12/19/98
Date Analyzed: 12/30/98
Dilution Factor: 2.35

CAS #	Compound	Concentration (ppbv)	Q
75-71-8	Freon 12	1.2	U
76-14-2	Freon 114	1.2	U
74-87-3	Chloromethane	1.2	U
75-01-4	Vinyl Chloride	1.2	U
74-83-9	Bromomethane	1.2	U
75-00-3	Chloroethane	1.2	U
75-69-4	Freon 11	18	
75-35-4	1,1-Dichloroethene	1.2	U
76-13-1	Freon 113	1.2	U
75-09-2	Methylene Chloride	2.3	U
75-34-3	1,1-Dichloroethane	3.2	U
156-59-2	cis-1,2-Dichloroethene	55	U
67-66-3	Chloroform	1.2	U
71-55-6	1,1,1-Trichloroethane	1.2	U
56-23-5	Carbon Tetrachloride	1.2	U
71-43-2	Benzene	6.0	U
107-06-2	1,2-Dichloroethane	1.2	U
79-01-6	Trichloroethene	2.4	U
78-87-5	1,2-Dichloropropane	1.2	U
10061-01-5	cis-1,3-Dichloropropene	1.2	U
108-88-3	Toluene	120	U
10061-02-6	trans-1,3-Dichloropropene	1.2	U
79-00-5	1,1,2-Trichloroethane	1.2	U
127-18-4	Tetrachloroethene	2.8	U
106-93-4	Ethylene Dibromide	1.2	U
108-90-7	Chlorobenzene	6.1	U
100-41-4	Ethyl Benzene	20	U
108-38-3	m,p-Xylene	82	U
95-47-6	o-Xylene	41	U
100-42-5	Styrene	1.2	U
79-34-5	1,1,2,2-Tetrachloroethane	1.2	U
108-67-8	1,3,5-Trimethylbenzene	27	U
95-63-6	1,2,4-Trimethylbenzene	77	U
541-73-1	1,3-Dichlorobenzene	1.7	J
106-46-7	1,4-Dichlorobenzene	390	U
100-44-7	Chlorotoluene	1.2	U
95-50-1	1,2-Dichlorobenzene	34	U
120-82-1	1,2,4-Trichlorobenzene	1.2	U
87-68-3	Hexachlorobutadiene	1.2	U
115-07-1	Propylene	4.7	U

FORM I-ATL

1/25/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-18

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 120 ml
% Moisture: N/A
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-08A
Lab File ID: t123010
Date Received: 12/19/98
Date Analyzed: 12/30/98
Dilution Factor: 2.35

CAS #	Compound	Concentration (ppbv)	Q
106-99-0	1,3-Butadiene	4.7	U
67-64-1	Acetone	16	J U
75-15-0	Carbon Disulfide	4.7	U
67-63-0	2-Propanol	4.7	U
156-60-5	trans-1,2-Dichloroethene	4.7	U
108-05-4	Vinyl Acetate	4.7	U
78-93-3	2-Butanone (Methyl Ethyl Ketone)	4.7	U
110-54-3	Hexane	5.0	J
109-99-9	Tetrahydrofuran	4.7	U
110-82-7	Cyclohexane	4.7	U
123-91-1	1,4-Dioxane	4.7	U
75-27-4	Bromodichloromethane	4.7	U
108-10-1	4-Methyl-2-pentanone	4.7	U
591-78-6	2-Hexanone	4.7	U
124-48-1	Dibromochloromethane	4.7	U
75-25-2	Bromoform	4.7	U
622-96-8	4-Ethyltoluene	78	U
64-17-5	Ethanol	7.4	J U
1634-04-4	Methyl tert-Butyl Ether	4.7	U
142-82-5	Heptane	6.1	J

FORM I-ATL

1/20/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-12

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 75 ml
% Moisture: N/A
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-09A
Lab File ID: t123014
Date Received: 12/19/98
Date Analyzed: 12/30/98
Dilution Factor: 3.76

CAS #	Compound	Concentration (ppbv)	Q
75-71-8	Freon 12	1.9	U
76-14-2	Freon 114	1.9	U
74-87-3	Chloromethane	1.9	U
75-01-4	Vinyl Chloride	190	
74-83-9	Bromomethane	1.9	U
75-00-3	Chloroethane	1.9	U
75-69-4	Freon 11	1.9	U
75-35-4	1,1-Dichloroethene	1.9	U
76-13-1	Freon 113	1.9	U
75-09-2	Methylene Chloride	1.9	U
75-34-3	1,1-Dichloroethane	9.0	
156-59-2	cis-1,2-Dichloroethene	48	
67-66-3	Chloroform	1.9	U
71-55-6	1,1,1-Trichloroethane	1.9	U
56-23-5	Carbon Tetrachloride	1.9	U
71-43-2	Benzene	1.9	U
107-06-2	1,2-Dichloroethane	1.9	U
79-01-6	Trichloroethene	1.9	U
78-87-5	1,2-Dichloropropane	1.9	U
10061-01-5	cis-1,3-Dichloropropene	1.9	U
108-88-3	Toluene	100	
10061-02-6	trans-1,3-Dichloropropene	1.9	U
79-00-5	1,1,2-Trichloroethane	1.9	U
127-18-4	Tetrachloroethene	1.9	U
106-93-4	Ethylene Dibromide	1.9	U
108-90-7	Chlorobenzene	4.7	
100-41-4	Ethyl Benzene	15	
108-38-3	m,p-Xylene	63	
95-47-6	o-Xylene	30	
100-42-5	Styrene	1.9	U
79-34-5	1,1,2,2-Tetrachloroethane	1.9	U
108-67-8	1,3,5-Trimethylbenzene	20	
95-63-6	1,2,4-Trimethylbenzene	54	
541-73-1	1,3-Dichlorobenzene	1.9	U
106-46-7	1,4-Dichlorobenzene	110	
100-44-7	Chlorotoluene	1.9	U
95-50-1	1,2-Dichlorobenzene	23	
120-82-1	1,2,4-Trichlorobenzene	1.9	U
87-68-3	Hexachlorobutadiene	1.9	U
115-07-1	Propylene	7.5	U

FORM I-ATL

1/27/99

000273

LEVEL-IV VALIDATABLE

SAMPLE NO.
DC-12

EPA Method TO-14

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 75 ml
% Moisture: N/A
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-09A
Lab File ID: t123014
Date Received: 12/19/98
Date Analyzed: 12/30/98
Dilution Factor: 3.76

CAS #	Compound	Concentration (ppbv)	Q
106-99-0	1,3-Butadiene	7.5	U
67-64-1	Acetone	13	~~U~~
75-15-0	Carbon Disulfide	7.5	U
67-63-0	2-Propanol	7.5	U
156-60-5	trans-1,2-Dichloroethene	7.5	U
108-05-4	Vinyl Acetate	7.5	U
78-93-3	2-Butanone (Methyl Ethyl Ketone)	7.5	U
110-54-3	Hexane	18	J
109-99-9	Tetrahydrofuran	7.5	U
110-82-7	Cyclohexane	530	
123-91-1	1,4-Dioxane	7.5	U
75-27-4	Bromodichloromethane	7.5	U
108-10-1	4-Methyl-2-pentanone	7.5	U
591-78-6	2-Hexanone	7.5	U
124-48-1	Dibromochloromethane	7.5	U
75-25-2	Bromoform	7.5	U
622-96-8	4-Ethyltoluene	58	U
64-17-5	Ethanol	7.5	U
1634-04-4	Methyl tert-Butyl Ether	7.5	U
142-82-5	Heptane	7.5	U

FORM I-ATL

EDL 1/20/99

LEVEL-IV VALIDATABLE

000299
SAMPLE NO.
DC-21

EPA Method TO-14

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 200 ml
% Moisture: N/A
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-10A
Lab File ID: t123013
Date Received: 12/19/98
Date Analyzed: 12/30/98
Dilution Factor: 1.41

CAS #	Compound	Concentration (ppbv)	Q
75-71-8	Freon 12	0.72	J
76-14-2	Freon 114	0.71	U
74-87-3	Chloromethane	1.2	✓ U
75-01-4	Vinyl Chloride	3.1	U
74-83-9	Bromomethane	0.71	U
75-00-3	Chloroethane	0.71	U
75-69-4	Freon 11	0.71	U
75-35-4	1,1-Dichloroethene	0.71	U
76-13-1	Freon 113	0.71	U
75-09-2	Methylene Chloride	0.73	✓ U
75-34-3	1,1-Dichloroethane	3.9	U
156-59-2	cis-1,2-Dichloroethene	48	U
67-66-3	Chloroform	0.71	U
71-55-6	1,1,1-Trichloroethane	0.71	U
56-23-5	Carbon Tetrachloride	0.71	U
71-43-2	Benzene	2.1	✓ U
107-06-2	1,2-Dichloroethane	0.71	U
79-01-6	Trichloroethene	0.78	✓ U
78-87-5	1,2-Dichloropropane	0.71	U
10061-01-5	cis-1,3-Dichloropropene	0.71	U
108-88-3	Toluene	98	U
10061-02-6	trans-1,3-Dichloropropene	0.71	U
79-00-5	1,1,2-Trichloroethane	0.71	U
127-18-4	Tetrachloroethene	0.79	✓ U
106-93-4	Ethylene Dibromide	0.71	U
108-90-7	Chlorobenzene	4.7	U
100-41-4	Ethyl Benzene	16	U
108-38-3	m,p-Xylene	67	U
95-47-6	o-Xylene	32	U
100-42-5	Styrene	0.71	U
79-34-5	1,1,2,2-Tetrachloroethane	0.71	U
108-67-8	1,3,5-Trimethylbenzene	24	U
95-63-6	1,2,4-Trimethylbenzene	67	U
541-73-1	1,3-Dichlorobenzene	1.5	✓ U
106-46-7	1,4-Dichlorobenzene	130	U
100-44-7	Chlorotoluene	0.71	U
95-50-1	1,2-Dichlorobenzene	29	U
120-82-1	1,2,4-Trichlorobenzene	0.71	U
87-68-3	Hexachlorobutadiene	0.71	U
115-07-1	Propylene	2.8	U

FORM I-ATL

1/25/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-21

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 200 ml
% Moisture: N/A
Instrument ID: msdt.i

Contract:
SDG No.:

Lab Sample ID: 9812340-10A
Lab File ID: t123013
Date Received: 12/19/98
Date Analyzed: 12/30/98
Dilution Factor: 1.41

CAS #	Compound	Concentration (ppbv)	Q
106-99-0	1,3-Butadiene	2.8	U
67-64-1	Acetone	5.8	U
75-15-0	Carbon Disulfide	2.8	U
67-63-0	2-Propanol	2.8	U
156-60-5	trans-1,2-Dichloroethene	2.8	U
108-05-4	Vinyl Acetate	2.8	U
78-93-3	2-Butanone (Methyl Ethyl Ketone)	2.8	U
110-54-3	Hexane	2.8	U
109-99-9	Tetrahydrofuran	2.8	U
110-82-7	Cyclohexane	2.8	U
123-91-1	1,4-Dioxane	28	
75-27-4	Bromodichloromethane	2.8	U
108-10-1	4-Methyl-2-pentanone	2.8	U
591-78-6	2-Hexanone	2.8	U
124-48-1	Dibromochloromethane	2.8	U
75-25-2	Bromoform	2.8	U
622-96-8	4-Ethyltoluene	69	U
64-17-5	Ethanol	4.1	U
1634-04-4	Methyl tert-Butyl Ether	2.8	U
142-82-5	Heptane	2.8	U

11/27/99

FORM I-ATL

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-15

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 0.5 ml
% Moisture: NA
Instrument ID: msdl.i

Contract:
SDG No.:

Lab Sample ID: 9812348-01A
Lab File ID: I122913
Date Received: 12/21/98
Date Analyzed: 12/29/98
Dilution Factor: 564

CAS #	Compound	Concentration (ppbv)	Q
75-71-8	Freon 12	280	U
76-14-2	Freon 114	280	U
74-87-3	Chloromethane	280	U
75-01-4	Vinyl Chloride	88000	
74-83-9	Bromomethane	280	U
75-00-3	Chloroethane	950	J
75-69-4	Freon 11	280	U
75-35-4	1,1-Dichloroethene	280	U
76-13-1	Freon 113	280	U
75-09-2	Methylene Chloride	1000	J
75-34-3	1,1-Dichloroethane	9300	
156-59-2	cis-1,2-Dichloroethene	8100	
67-66-3	Chloroform	280	U
71-55-6	1,1,1-Trichloroethane	280	U
56-23-5	Carbon Tetrachloride	280	U
71-43-2	Benzene	840	J
107-06-2	1,2-Dichloroethane	280	U
79-01-6	Trichloroethene	1100	J
78-87-5	1,2-Dichloropropane	280	U
10061-01-5	cis-1,3-Dichloropropene	280	U
108-88-3	Toluene	27000	
10061-02-6	trans-1,3-Dichloropropene	280	U
79-00-5	1,1,2-Trichloroethane	280	U
127-18-4	Tetrachloroethene	380	J
106-93-4	Ethylene Dibromide	280	U
108-90-7	Chlorobenzene	4500	
100-41-4	Ethyl Benzene	2300	
108-38-3	m,p-Xylene	6100	
95-47-6	o-Xylene	2000	
100-42-5	Styrene	280	U
79-34-5	1,1,2,2-Tetrachloroethane	280	U
108-67-8	1,3,5-Trimethylbenzene	630	J
95-63-6	1,2,4-Trimethylbenzene	1900	
541-73-1	1,3-Dichlorobenzene	650	J
106-46-7	1,4-Dichlorobenzene	3200	
100-44-7	Chlorotoluene	280	U
95-50-1	1,2-Dichlorobenzene	8600	
120-82-1	1,2,4-Trichlorobenzene	280	U
87-68-3	Hexachlorobutadiene	280	U
115-07-1	Propylene	1100	U

FORM I-ATL

1/28/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-15

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 0.5 ml
% Moisture: NA
Instrument ID: msdl.i

Contract:
SDG No.:

Lab Sample ID: 9812348-01A
Lab File ID: I122913
Date Received: 12/21/98
Date Analyzed: 12/29/98
Dilution Factor: 564

CAS #	Compound	Concentration (ppbv)	Q
106-99-0	1,3-Butadiene	1100	U
67-64-1	Acetone	1100	U
75-15-0	Carbon Disulfide	1100	U
67-63-0	2-Propanol	1100	U
156-60-5	trans-1,2-Dichloroethene	1100	U
108-05-4	Vinyl Acetate	1100	U
78-93-3	2-Butanone (Methyl Ethyl Ketone)	1100	U
110-54-3	Hexane	38000	
109-99-9	Tetrahydrofuran	1100	U
110-82-7	Cyclohexane	9300	
123-91-1	1,4-Dioxane	1100	U
75-27-4	Bromodichloromethane	1100	U
108-10-1	4-Methyl-2-pentanone	1100	U
591-78-6	2-Hexanone	1100	U
124-48-1	Dibromochloromethane	1100	U
75-25-2	Bromoform	1100	U
622-96-8	4-Ethyltoluene	1500	J
64-17-5	Ethanol	1100	U
1634-04-4	Methyl tert-Butyl Ether	1100	U
142-82-5	Heptane	30000	

FORM I-ATL

EQL 1/28/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-7

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 20 ml
% Moisture: NA
Instrument ID: msdl.i

Contract:
SDG No.:

Lab Sample ID: 9812348-02A
Lab File ID: I122914
Date Received: 12/21/98
Date Analyzed: 12/29/98
Dilution Factor: 13.9

CAS #	Compound	Concentration (ppbv)	Q
75-71-8	Freon 12	7.0	U
76-14-2	Freon 114	7.0	U
74-87-3	Chloromethane	7.0	U
75-01-4	Vinyl Chloride	65	
74-83-9	Bromomethane	7.0	U
75-00-3	Chloroethane	230	
75-69-4	Freon 11	7.0	U
75-35-4	1,1-Dichloroethene	7.0	U
76-13-1	Freon 113	7.0	U
75-09-2	Methylene Chloride	7.0	U
75-34-3	1,1-Dichloroethane	28	
156-59-2	cis-1,2-Dichloroethene	30	U
67-66-3	Chloroform	7.0	U
71-55-6	1,1,1-Trichloroethane	7.0	U
56-23-5	Carbon Tetrachloride	7.0	U
71-43-2	Benzene	94	
107-06-2	1,2-Dichloroethane	7.0	U
79-01-6	Trichloroethene	7.0	U
78-87-5	1,2-Dichloropropane	7.0	U
10061-01-5	cis-1,3-Dichloropropene	7.0	U
108-88-3	Toluene	86	U
10061-02-6	trans-1,3-Dichloropropene	7.0	U
79-00-5	1,1,2-Trichloroethane	7.0	U
127-18-4	Tetrachloroethene	7.0	U
106-93-4	Ethylene Dibromide	7.0	U
108-90-7	Chlorobenzene	7.0	U
100-41-4	Ethyl Benzene	13	U
108-38-3	m,p-Xylene	88	U
95-47-6	o-Xylene	29	U
100-42-5	Styrene	7.0	U
79-34-5	1,1,2,2-Tetrachloroethane	7.0	U
108-67-8	1,3,5-Trimethylbenzene	14	U
95-63-6	1,2,4-Trimethylbenzene	46	U
541-73-1	1,3-Dichlorobenzene	7.0	U
106-46-7	1,4-Dichlorobenzene	7.0	U
100-44-7	Chlorotoluene	7.0	U
95-50-1	1,2-Dichlorobenzene	28	U
120-82-1	1,2,4-Trichlorobenzene	7.0	U
87-68-3	Hexachlorobutadiene	7.0	U
115-07-1	Propylene	28	U

FORM I-ATL

1/28/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-7

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 20 ml
% Moisture: NA
Instrument ID: msdl.i

Contract:
SDG No.:

Lab Sample ID: 9812348-02A
Lab File ID: I122914
Date Received: 12/21/98
Date Analyzed: 12/29/98
Dilution Factor: 13.9

CAS #	Compound	Concentration (ppbv)	Q
106-99-0	1,3-Butadiene	28	U
67-64-1	Acetone	28	U
75-15-0	Carbon Disulfide	28	U
67-63-0	2-Propanol	28	U
156-60-5	trans-1,2-Dichloroethene	28	U
108-05-4	Vinyl Acetate	28	U
78-93-3	2-Butanone (Methyl Ethyl Ketone)	28	U
110-54-3	Hexane	130	
109-99-9	Tetrahydrofuran	28	U
110-82-7	Cyclohexane	28	U
123-91-1	1,4-Dioxane	28	U
75-27-4	Bromodichloromethane	28	U
108-10-1	4-Methyl-2-pentanone	28	U
591-78-6	2-Hexanone	28	U
124-48-1	Dibromochloromethane	28	U
75-25-2	Bromoform	28	U
622-96-8	4-Ethyltoluene	51	J U
64-17-5	Ethanol	28	U
1634-04-4	Methyl tert-Butyl Ether	28	U
142-82-5	Heptane	28	U

FORM I-ATL

1/28/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-8

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 9.3 ml
% Moisture: NA
Instrument ID: msdl.i

Contract:
SDG No.:

Lab Sample ID: 9812348-03A
Lab File ID: I122915
Date Received: 12/21/98
Date Analyzed: 12/29/98
Dilution Factor: 28.8

CAS #	Compound	Concentration (ppbv)	Q
75-71-8	Freon 12	14	U
76-14-2	Freon 114	14	U
74-87-3	Chloromethane	14	U
75-01-4	Vinyl Chloride	69	
74-83-9	Bromomethane	14	U
75-00-3	Chloroethane	240	
75-69-4	Freon 11	14	U
75-35-4	1,1-Dichloroethene	14	U
76-13-1	Freon 113	14	U
75-09-2	Methylene Chloride	14	U
75-34-3	1,1-Dichloroethane	34	J
156-59-2	cis-1,2-Dichloroethene	93	U
67-66-3	Chloroform	14	U
71-55-6	1,1,1-Trichloroethane	14	U
56-23-5	Carbon Tetrachloride	14	U
71-43-2	Benzene	88	
107-06-2	1,2-Dichloroethane	14	U
79-01-6	Trichloroethene	14	U
78-87-5	1,2-Dichloropropane	14	U
10061-01-5	cis-1,3-Dichloropropene	14	U
108-88-3	Toluene	230	U
10061-02-6	trans-1,3-Dichloropropene	14	U
79-00-5	1,1,2-Trichloroethane	14	U
127-18-4	Tetrachloroethene	14	U
106-93-4	Ethylene Dibromide	14	U
108-90-7	Chlorobenzene	14	U
100-41-4	Ethyl Benzene	32	U
108-38-3	m,p-Xylene	150	U
95-47-6	o-Xylene	60	U
100-42-5	Styrene	14	U
79-34-5	1,1,2,2-Tetrachloroethane	14	U
108-67-8	1,3,5-Trimethylbenzene	32	U
95-63-6	1,2,4-Trimethylbenzene	92	U
541-73-1	1,3-Dichlorobenzene	14	U
106-46-7	1,4-Dichlorobenzene	14	U
100-44-7	Chlorotoluene	14	U
95-50-1	1,2-Dichlorobenzene	46	U
120-82-1	1,2,4-Trichlorobenzene	14	U
87-68-3	Hexachlorobutadiene	14	U
115-07-1	Propylene	58	U

FORM I-ATL

1/28/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-8

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 9.3 ml
% Moisture: NA
Instrument ID: msdl.i

Contract:
SDG No.:

Lab Sample ID: 9812348-03A
Lab File ID: I122915
Date Received: 12/21/98
Date Analyzed: 12/29/98
Dilution Factor: 28.8

CAS #	Compound	Concentration (ppbv)	Q
106-99-0	1,3-Butadiene	58	U
67-64-1	Acetone	58	U
75-15-0	Carbon Disulfide	58	U
67-63-0	2-Propanol	58	U
156-60-5	trans-1,2-Dichloroethene	58	U
108-05-4	Vinyl Acetate	58	U
78-93-3	2-Butanone (Methyl Ethyl Ketone)	58	U
110-54-3	Hexane	130	J
109-99-9	Tetrahydrofuran	58	U
110-82-7	Cyclohexane	58	U
123-91-1	1,4-Dioxane	58	U
75-27-4	Bromodichloromethane	58	U
108-10-1	4-Methyl-2-pentanone	58	U
591-78-6	2-Hexanone	58	U
124-48-1	Dibromochloromethane	58	U
75-25-2	Bromoform	58	U
622-96-8	4-Ethyltoluene	94	J 58
64-17-5	Ethanol	58	U
1634-04-4	Methyl tert-Butyl Ether	58	U
142-82-5	Heptane	58	U

FORM I-ATL

1/28/99

000106

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-11

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 48 ml
% Moisture: NA
Instrument ID: msdl.i

Contract:
SDG No.:

Lab Sample ID: 9812348-04A
Lab File ID: I122916
Date Received: 12/21/98
Date Analyzed: 12/29/98
Dilution Factor: 6.45

CAS #	Compound	Concentration (ppbv)	Q
75-71-8	Freon 12	3.2	U
76-14-2	Freon 114	3.2	U
74-87-3	Chloromethane	3.2	U
75-01-4	Vinyl Chloride	20	
74-83-9	Bromomethane	3.2	U
75-00-3	Chloroethane	3.2	U
75-69-4	Freon 11	3.2	U
75-35-4	1,1-Dichloroethene	3.2	U
76-13-1	Freon 113	3.2	U
75-09-2	Methylene Chloride	4.7	U
75-34-3	1,1-Dichloroethane	22	
156-59-2	cis-1,2-Dichloroethene	290	
67-66-3	Chloroform	3.2	U
71-55-6	1,1,1-Trichloroethane	3.2	U
56-23-5	Carbon Tetrachloride	3.2	U
71-43-2	Benzene	7.0	U
107-06-2	1,2-Dichloroethane	3.2	U
79-01-6	Trichloroethene	24	
78-87-5	1,2-Dichloropropane	3.2	U
10061-01-5	cis-1,3-Dichloropropene	3.2	U
108-88-3	Toluene	810	
10061-02-6	trans-1,3-Dichloropropene	3.2	U
79-00-5	1,1,2-Trichloroethane	3.2	U
127-18-4	Tetrachloroethene	3.3	U
106-93-4	Ethylene Dibromide	3.2	U
108-90-7	Chlorobenzene	3.2	U
100-41-4	Ethyl Benzene	100	
108-38-3	m,p-Xylene	400	
95-47-6	o-Xylene	190	
100-42-5	Styrene	11	J
79-34-5	1,1,2,2-Tetrachloroethane	3.2	U
108-67-8	1,3,5-Trimethylbenzene	87	U
95-63-6	1,2,4-Trimethylbenzene	220	U
541-73-1	1,3-Dichlorobenzene	5.4	U
106-46-7	1,4-Dichlorobenzene	27	U
100-44-7	Chlorotoluene	3.2	U
95-50-1	1,2-Dichlorobenzene	93	U
120-82-1	1,2,4-Trichlorobenzene	3.2	U
87-68-3	Hexachlorobutadiene	3.2	U
115-07-1	Propylene	13	U

FORM I-ATL

1/28/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-11

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 48 ml
% Moisture: NA
Instrument ID: msdl.i

Contract:
SDG No.:

Lab Sample ID: 9812348-04A
Lab File ID: I122916
Date Received: 12/21/98
Date Analyzed: 12/29/98
Dilution Factor: 6.45

CAS #	Compound	Concentration (ppbv)	Q
106-99-0	1,3-Butadiene	13	U
67-64-1	Acetone	44	U
75-15-0	Carbon Disulfide	13	U
67-63-0	2-Propanol	13	U
156-60-5	trans-1,2-Dichloroethene	14	U
108-05-4	Vinyl Acetate	13	U
78-93-3	2-Butanone (Methyl Ethyl Ketone)	13	U
110-54-3	Hexane	19	J
109-99-9	Tetrahydrofuran	13	U
110-82-7	Cyclohexane	13	U
123-91-1	1,4-Dioxane	30	J
75-27-4	Bromodichloromethane	13	U
108-10-1	4-Methyl-2-pentanone	13	U
591-78-6	2-Hexanone	13	U
124-48-1	Dibromochloromethane	13	U
75-25-2	Bromoform	13	U
622-96-8	4-Ethyltoluene	270	U
64-17-5	Ethanol	16	U
1634-04-4	Methyl tert-Butyl Ether	13	U
142-82-5	Heptane	13	U

FORM I-ATL

1/28/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-19

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 50 ml
% Moisture: NA
Instrument ID: msdj.i

Contract:
SDG No.:

Lab Sample ID: 9812369-01A
Lab File ID: j123112
Date Received: 12/22/98
Date Analyzed: 12/31/98
Dilution Factor: 2.88

CAS #	Compound	Concentration (ppbv)	Q
75-71-8	Freon 12	2.6	
76-14-2	Freon 114	1.4	U
74-87-3	Chloromethane	1.4	U
75-01-4	Vinyl Chloride	32	
74-83-9	Bromomethane	1.4	U
75-00-3	Chloroethane	1.4	U
75-69-4	Freon 11	3.2	
75-35-4	1,1-Dichloroethene	1.4	U
76-13-1	Freon 113	1.4	U
75-09-2	Methylene Chloride	2.9	U
75-34-3	1,1-Dichloroethane	5.6	U
156-59-2	cis-1,2-Dichloroethene	41	U
67-66-3	Chloroform	1.4	U
71-55-6	1,1,1-Trichloroethane	1.4	U
56-23-5	Carbon Tetrachloride	1.4	U
71-43-2	Benzene	7.6	U
107-06-2	1,2-Dichloroethane	1.4	U
79-01-6	Trichloroethene	5.2	
78-87-5	1,2-Dichloropropane	1.4	U
10061-01-5	cis-1,3-Dichloropropene	1.4	U
108-88-3	Toluene	96	U
10061-02-6	trans-1,3-Dichloropropene	1.4	U
79-00-5	1,1,2-Trichloroethane	1.4	U
127-18-4	Tetrachloroethene	5.7	U
106-93-4	Ethylene Dibromide	1.4	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethyl Benzene	15	U
108-38-3	m,p-Xylene	58	U
95-47-6	o-Xylene	30	U
100-42-5	Styrene	1.4	U
79-34-5	1,1,2,2-Tetrachloroethane	1.4	U
108-67-8	1,3,5-Trimethylbenzene	18	U
95-63-6	1,2,4-Trimethylbenzene	50	U
541-73-1	1,3-Dichlorobenzene	1.4	U
106-46-7	1,4-Dichlorobenzene	400	U
100-44-7	Chlorotoluene	1.4	U
95-50-1	1,2-Dichlorobenzene	20	U
120-82-1	1,2,4-Trichlorobenzene	1.4	U
87-68-3	Hexachlorobutadiene	1.4	U
115-07-1	Propylene	5.8	U

FORM I-ATL

1/29/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-19

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 50 ml
% Moisture: NA
Instrument ID: msdj.i

Contract:
SDG No.:

Lab Sample ID: 9812369-01A
Lab File ID: j123112
Date Received: 12/22/98
Date Analyzed: 12/31/98
Dilution Factor: 2.88

CAS #	Compound	Concentration (ppbv)	Q
106-99-0	1,3-Butadiene	5.8	U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	5.8	U
67-63-0	2-Propanol	5.8	U
156-60-5	trans-1,2-Dichloroethene	2.8	U
108-05-4	Vinyl Acetate	5.8	U
78-93-3	2-Butanone (Methyl Ethyl Ketone)	5.8	U
110-54-3	Hexane	5.8	U
109-99-9	Tetrahydrofuran	5.8	U
110-82-7	Cyclohexane	5.8	U
123-91-1	1,4-Dioxane	5.8	U
75-27-4	Bromodichloromethane	5.8	U
108-10-1	4-Methyl-2-pentanone	5.8	U
591-78-6	2-Hexanone	5.8	U
124-48-1	Dibromochloromethane	5.8	U
75-25-2	Bromoform	5.8	U
622-96-8	4-Ethyltoluene	55	U
64-17-5	Ethanol	9.8	U
1634-04-4	Methyl tert-Butyl Ether	5.8	U
142-82-5	Heptane	5.8	U

FORM I-ATL

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LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-20
Background Sample

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 100 ml
% Moisture: NA
Instrument ID: msdj.i

Contract:
SDG No.:

Lab Sample ID: 9812369-03A
Lab File ID: j123110
Date Received: 12/22/98
Date Analyzed: 12/31/98
Dilution Factor: 1.32

CAS #	Compound	Concentration (ppbv)	Q
75-71-8	Freon 12	0.66	U
76-14-2	Freon 114	0.66	U
74-87-3	Chloromethane	0.83	U
75-01-4	Vinyl Chloride	0.66	U
74-83-9	Bromomethane	0.66	U
75-00-3	Chloroethane	0.66	U
75-69-4	Freon 11	0.66	U
75-35-4	1,1-Dichloroethene	0.66	U
76-13-1	Freon 113	0.66	U
75-09-2	Methylene Chloride	0.79	J U
75-34-3	1,1-Dichloroethane	0.66	U
156-59-2	cis-1,2-Dichloroethene	0.66	U
67-66-3	Chloroform	0.66	U
71-55-6	1,1,1-Trichloroethane	0.66	U
56-23-5	Carbon Tetrachloride	0.66	U
71-43-2	Benzene	0.76	U
107-06-2	1,2-Dichloroethane	0.66	U
79-01-6	Trichloroethene	0.66	U
78-87-5	1,2-Dichloropropane	0.66	U
10061-01-5	cis-1,3-Dichloropropene	0.66	U
108-88-3	Toluene	2.2	U
10061-02-6	trans-1,3-Dichloropropene	0.66	U
79-00-5	1,1,2-Trichloroethane	0.66	U
127-18-4	Tetrachloroethene	0.66	U
106-93-4	Ethylene Dibromide	0.66	U
108-90-7	Chlorobenzene	0.66	U
100-41-4	Ethyl Benzene	0.66	U
108-38-3	m,p-Xylene	0.70	U
95-47-6	o-Xylene	0.66	U
100-42-5	Styrene	0.66	U
79-34-5	1,1,2,2-Tetrachloroethane	0.66	U
108-67-8	1,3,5-Trimethylbenzene	0.66	U
95-63-6	1,2,4-Trimethylbenzene	0.28	J U
541-73-1	1,3-Dichlorobenzene	0.66	U
106-46-7	1,4-Dichlorobenzene	0.66	U
100-44-7	Chlorotoluene	0.66	U
95-50-1	1,2-Dichlorobenzene	0.66	U
120-82-1	1,2,4-Trichlorobenzene	0.66	U
87-68-3	Hexachlorobutadiene	0.66	U
115-07-1	Propylene	2.6	U

FORM I-ATL

1/29/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-20
Background sample

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 100 ml
% Moisture: NA
Instrument ID: msdj.i

Contract:
SDG No.:

Lab Sample ID: 9812369-03A
Lab File ID: j123110
Date Received: 12/22/98
Date Analyzed: 12/31/98
Dilution Factor: 1.32

CAS #	Compound	Concentration (ppbv)	Q
106-99-0	1,3-Butadiene	2.6	U
67-64-1	Acetone	5.2	~~U~~
75-15-0	Carbon Disulfide	2.6	U
67-63-0	2-Propanol	2.6	U
156-60-5	trans-1,2-Dichloroethene	2.6	U
108-05-4	Vinyl Acetate	2.6	U
78-93-3	2-Butanone (Methyl Ethyl Ketone)	2.6	U
110-54-3	Hexane	2.6	U
109-99-9	Tetrahydrofuran	2.6	U
110-82-7	Cyclohexane	2.6	U
123-91-1	1,4-Dioxane	5.5	
75-27-4	Bromodichloromethane	2.6	U
108-10-1	4-Methyl-2-pentanone	2.6	U
591-78-6	2-Hexanone	2.6	U
124-48-1	Dibromochloromethane	2.6	U
75-25-2	Bromoform	2.6	U
622-96-8	4-Ethyltoluene	2.6	U
64-17-5	Ethanol	2.6	U
1634-04-4	Methyl tert-Butyl Ether	2.6	U
142-82-5	Heptane	2.6	U

FORM I-ATL

1/29/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-1
Background sample

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 100 ml
% Moisture: NA
Instrument ID: msdj.i

Contract:
SDG No.:

Lab Sample ID: 9812369-04A
Lab File ID: j123109
Date Received: 12/22/98
Date Analyzed: 12/31/98
Dilution Factor: 1.32

CAS #	Compound	Concentration (ppbv)	Q
75-71-8	Freon 12	0.71	
76-14-2	Freon 114	0.66	U
74-87-3	Chloromethane	0.81	U
75-01-4	Vinyl Chloride	3.0	U
74-83-9	Bromomethane	0.70	
75-00-3	Chloroethane	0.66	U
75-69-4	Freon 11	0.66	U
75-35-4	1,1-Dichloroethene	0.66	U
76-13-1	Freon 113	0.66	U
75-09-2	Methylene Chloride	0.81	J B U
75-34-3	1,1-Dichloroethane	4.6	U
156-59-2	cis-1,2-Dichloroethene	47	U
67-66-3	Chloroform	0.66	U
71-55-6	1,1,1-Trichloroethane	0.66	U
56-23-5	Carbon Tetrachloride	0.66	U
71-43-2	Benzene	1.4	U
107-06-2	1,2-Dichloroethane	0.66	U
79-01-6	Trichloroethene	0.66	U
78-87-5	1,2-Dichloropropane	0.66	U
10061-01-5	cis-1,3-Dichloropropene	0.66	U
108-88-3	Toluene	110	U
10061-02-6	trans-1,3-Dichloropropene	0.66	U
79-00-5	1,1,2-Trichloroethane	0.66	U
127-18-4	Tetrachloroethene	0.66	U
106-93-4	Ethylene Dibromide	0.66	U
108-90-7	Chlorobenzene	3.7	U
100-41-4	Ethyl Benzene	16	U
108-38-3	m,p-Xylene	57	U
95-47-6	o-Xylene	27	U
100-42-5	Styrene	0.66	U
79-34-5	1,1,2,2-Tetrachloroethane	0.66	U
108-67-8	1,3,5-Trimethylbenzene	16	U
95-63-6	1,2,4-Trimethylbenzene	42	U
541-73-1	1,3-Dichlorobenzene	0.77	U
106-46-7	1,4-Dichlorobenzene	7.5	U
100-44-7	Chlorotoluene	0.66	U
95-50-1	1,2-Dichlorobenzene	16	U
120-82-1	1,2,4-Trichlorobenzene	0.66	U
87-68-3	Hexachlorobutadiene	0.66	U
115-07-1	Propylene	2.6	U

FORM I-ATL

1/29/99

LEVEL-IV VALIDATABLE

EPA Method TO-14

SAMPLE NO.
DC-1
Background sample

Lab Name: AIR TOXICS LIMITED
Matrix: AMBIENT AIR
Sample Vol: 100 ml
% Moisture: NA
Instrument ID: msdj.i

Contract:
SDG No.:

Lab Sample ID: 9812369-04A
Lab File ID: j123109
Date Received: 12/22/98
Date Analyzed: 12/31/98
Dilution Factor: 1.32

CAS #	Compound	Concentration (ppbv)	Q
106-99-0	1,3-Butadiene	2.6	U
67-64-1	Acetone	4.0	~~U~~
75-15-0	Carbon Disulfide	2.6	U
67-63-0	2-Propanol	2.6	U
156-60-5	trans-1,2-Dichloroethene	2.8	~~J~~ U
108-05-4	Vinyl Acetate	2.6	U
78-93-3	2-Butanone (Methyl Ethyl Ketone)	2.6	U
110-54-3	Hexane	2.6	U
109-99-9	Tetrahydrofuran	2.6	U
110-82-7	Cyclohexane	2.6	U
123-91-1	1,4-Dioxane	2.6	U
75-27-4	Bromodichloromethane	2.6	U
108-10-1	4-Methyl-2-pentanone	2.6	U
591-78-6	2-Hexanone	2.6	U
124-48-1	Dibromochloromethane	2.6	U
75-25-2	Bromoform	2.6	U
622-96-8	4-Ethyltoluene	48	~~U~~
64-17-5	Ethanol	5.5	~~U~~
1634-04-4	Methyl tert-Butyl Ether	2.6	U
142-82-5	Heptane	3.1	J

FORM I-ATL

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